MTNC040520C1
B19

Service Manual

HDTV MONITOR

PT-53X54J
GN1P

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injuryfrom electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing. When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautionswhen servicing high voltage equipment.

Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, usesafety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a wellinsulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.

The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shieldlimits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a returnpath to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage current hot check

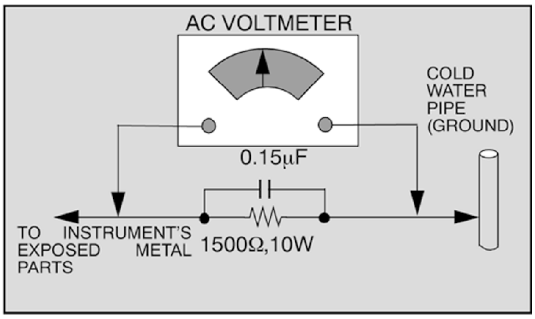
Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check. Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts. Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliampere.If any measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and

rechecked before it is returned to the customer.

Hot check circuit



Insulation test

Connect an insulation tester between an exposed metallic part and A.C. line. Apply 1080VAC/ 60Hz for 1 second. Confirm that the current measurement is 0.5mA ~ 2.0mA. Repeat test with other metallic exposed parts.

X-ray radiation

WARNING

The potential source of x-ray radiation in the PTV set is in the high voltage section and the picture tube.

NOTE

It is important to use an accurate, calibrated high voltage meter.

Apply all black video signals (1080i) and confirm high voltage measures 31.5 ± 1.0kV. If the high voltage is not within the range, change C514 (in D-Board) to 1800pF, 2000pF, 2400pF or 2700pF until the desired value isobtained.Apply NTSC white pattern and confirm the high voltage measures 30.1 ± 1.5kV. Apply HD 1080i white pattern and confirm the high voltage measures 30.1 ± 1.5kV.

2. About lead free solder (PbF)

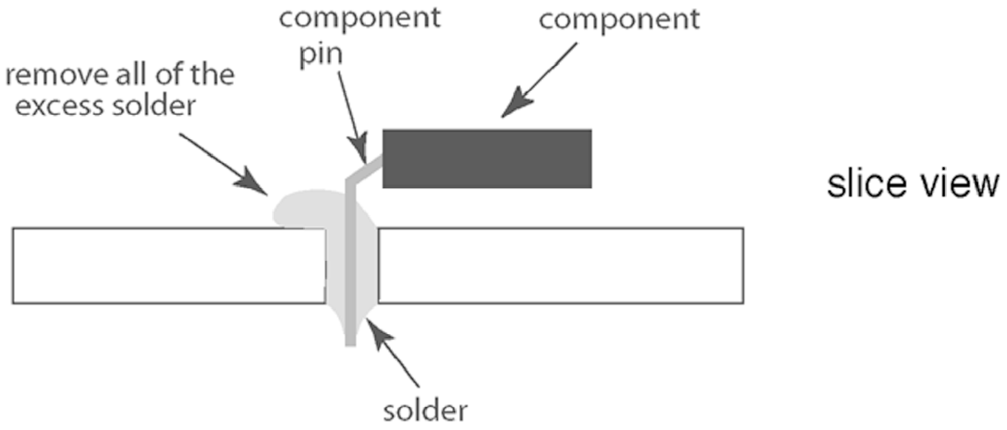
NOTE

Lead is listed as (Pb) in the periodic table of elements. / In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder. / The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). / Thatis Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For / service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be / used. / PCBs manufacturedusing lead free solder will have the "PbF" or a leaf symbol stamped on the / back of PCB.

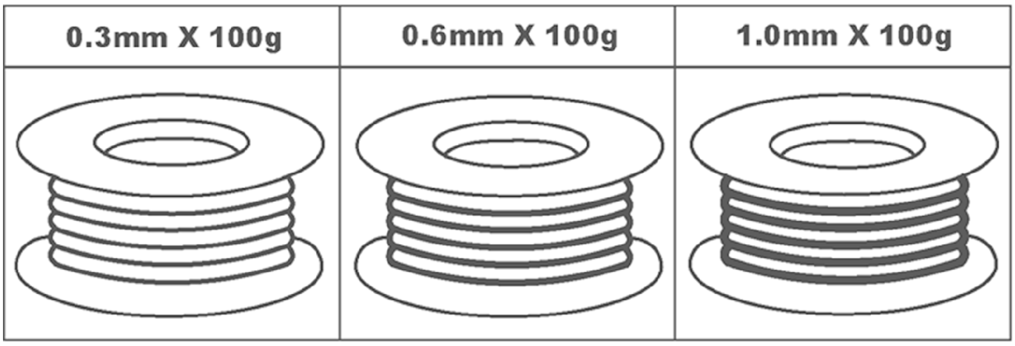
CAUTION

- **Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).**
- **Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). / If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If thisis not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.**
- **After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.**



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

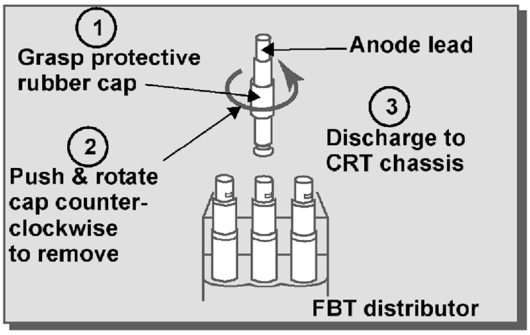

0.3mm X 100g
0.6mm X 100g
1.0mm X 100g

3. Important safety tests

Measuring H.V.

The anode caps are cemented to the CRTs. To gain access for high voltage measurement, remove the red CRT’s anode lead from the flyback transformer distributor. Grasp the anode lead protective cap at its bottom and squeeze it against thelocking cap body inside, rotate 1/4 turn counter clockwise and pull the anode lead sleeve out of the FBT distributor. Connect a high voltage positive lead from your H.V. meter to the FBT distributor, and the common negative lead to cold ground

FBT leads removal


①
Grasp protective rubber cap
Anode lead
③
Discharge to CRT chassis
②
Push & rotate cap counter-clockwise to remove
FBT distributor

Note:

Reinsert the anode lead into the FBT distributor until it is tightly and fully seated. Turn the locking cap clockwise to lock in place.

(EHT) Protector operation check

With the cabinet back removed, apply a nominal 120V A.C. to the PTV.

Over voltage test

Preparation:

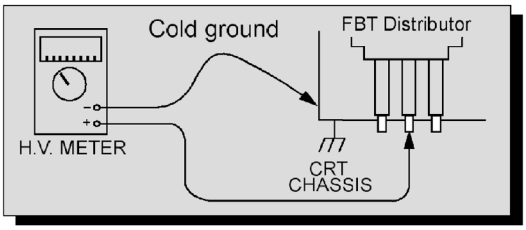
1. Turn PTV “OFF”

2. Connect a NTSC signal generator to the antenna terminal.

3. Connect DVM positive lead to D31 pin 2 and negative lead to D31

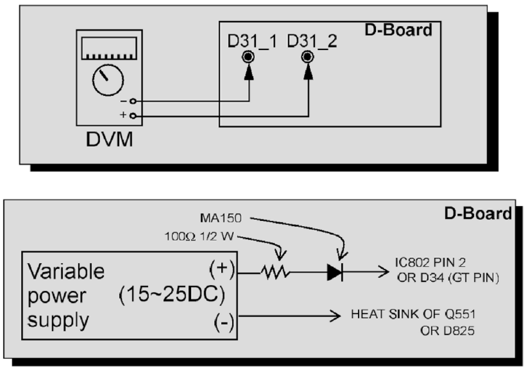
pin 1 on D-Board

H.V. measurement


Cold ground
FBT Distributor
H.V. METER
CRT
CHASSIS

4. **Connect a H.V. meter (static type, class 0.1) with high voltage leads to high voltage distributor on FBT.**

DVM and power supply connection


D31_1
D31_2
D-Board
DVM
MA150
100Ω 1/2 W
D-Board
Variable power supply
(+)
(15~25DC)
(-)
IC802 PIN 2
OR D34 (GT PIN)
HEAT SINK OF Q551
OR D825

5. **Connect the 15 ~ 25 V DC variable power supply positive lead to D34 or IC802 pin 2 (D Board) and negative lead to heat sink of Q551 or D825**

Procedures:

1. **Apply a NTSC white pattern.**
2. **Turn PTV ON.**
3. **Adjust the picture or brightness controls so that the DVM reads 12.7 ± 0.4 volts.**
4. **Increase the variable power supply until set turns off. The set should turn off at 12.7 ± 0.4 volts (DVM) and high voltage less than 36.4kV.**
5. **If the DVM reading is other than 12.7 ± 0.4 volts, readjust picture or brightness control and repeat steps 3.**
6. **Turn off the variable supply and confirm that the set will turn on by pulling out AC plug socket and connecting it again.**

4. Service notes

NOTE
These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)
Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board,however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.
Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper).
Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.
Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.
Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

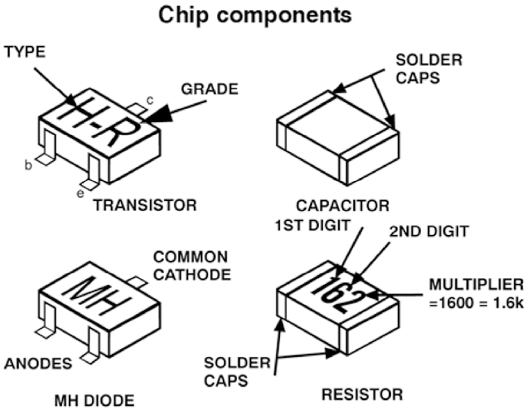
Component removal

1. **Use solder wick to remove solder from component end caps or terminal.**
2. **Without pulling up, carefully twist the component with tweezers to break the adhesive.**
3. **Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.**

Chip component installation

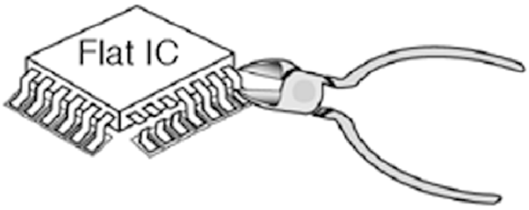
1. **Put a small amount of solder on the board soldering pads.**
2. **Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area**

with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

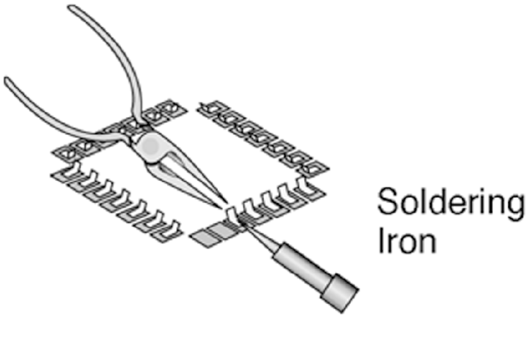

Chip components
TYPE
GRADE
H-R
c
b
e
TRANSISTOR
SOLDER
CAPS
CAPACITOR
1ST DIGIT
2ND DIGIT
MULTIPLIER
=1600 = 1.6k
162
SOLDER
CAPS
RESISTOR
COMMON
CATHODE
MH
ANODES
MH DIODE

How to replace flat ic (required tools)

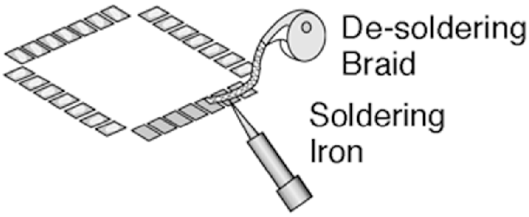
1. **Remove the solder from all of the pins of a Flat IC by using a desolder braid**



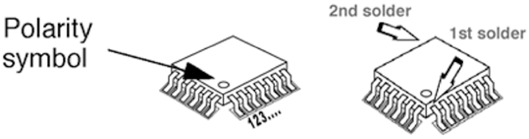
2. **Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.**


Soldering
Iron

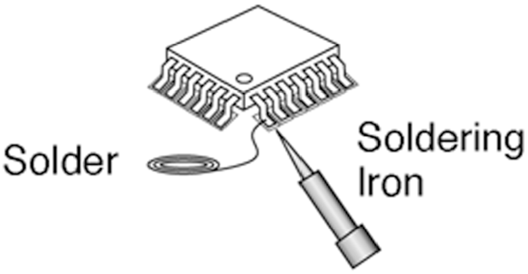
3. **Remove the solder from all the pads of the Flat IC by using a de solder braid**


De-soldering Braid
Soldering Iron

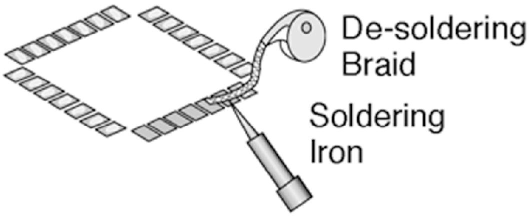
4. **Position the new Flat IC in place (apply the pins of the Flat IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol**


Polarity symbol
123....
2nd solder
1st solder

5. **Solder all pins to the soldering pads using a fine tipped soldering iron**


Solder
Soldering Iron

6. **Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below**


De-soldering Braid
Soldering Iron

IMPORTANT

To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires are securely connected

CAUTION

The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the

chassis. Connect the test equipment to the proper ground(HOT or COLD) when servicing, or incorrect voltages will be measured.

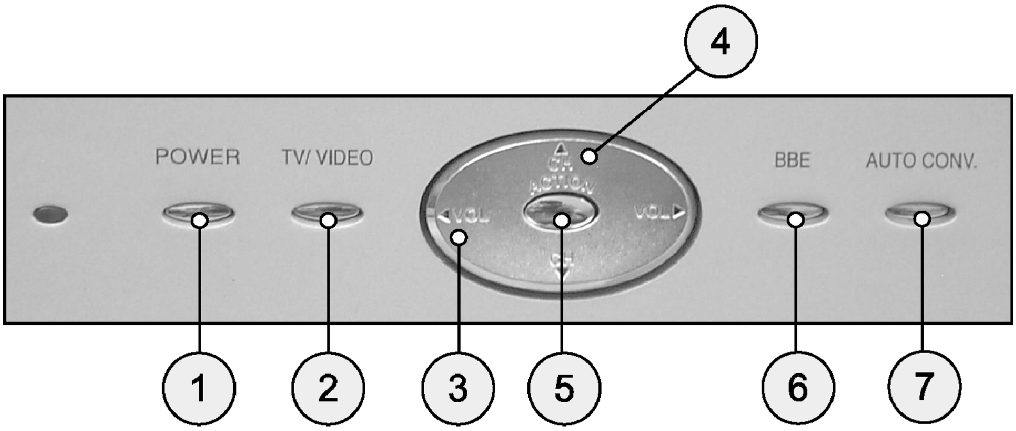
WARNING

This receiver has been designed to meet or exceed applicable safety and x-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to x-ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer'sparts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

5. PTV Location of controls


4
POWER
TV/ VIDEO
CH
ACTION
VOL
VOL
CH
BBE
AUTO CONV.
1
2
3
5
6
7

QUICK REFERENCE BUTTON OPERATION

① **POWER** - Press to turn ON or OFF.

② **TV/VIDEO** - Press to select TV or one of the video inputs.

③ **VOL** - Press to adjust sound level, settings and features on menu.

④ **CH** - Press to select programmed channels. Press to highlight desired features when menus are displayed.

⑤ **ACTION** - Press to access menus.

⑥ **BBE** - Press to set BBE sound ON or OFF.

⑦ **AUTO CONV.** - Press to access the auto convergence process.

6. Receiver feature table

FEATURE/MODEL	PT-53X54J
CHASSIS	AP832
MICRO	256K
MENU LANGUAGE	ENGLISH/SPANISH/FRENCH
CLOSED CAPTION	X
V-CHIP (USA/CANADA)	X
CHANNEL INFO BANNER	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
CHANNEL COUNT	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT
REMOTE CONTROL (W/LIGHT)	EUR7603ZF0
CRT SUPPLIER	MDDA (CENTAUR IV)
SCREEN	W/PROT SCREEN
CHASSIS	GN1P
COMB FILTER	MOTION ADP, 3D Y/C
HEC/VEC (X=BOTH)	X
NEW YNR	X
VM	X (SELECTABLE)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AUTO CONVERGENCE	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
DIGITAL SCAN RATE	1080i, 540p
NTSC LINE DOUBLER	540p PROGRESSIVE (NEW)
MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	15W x 2 (10%)
No. OF SPEAKERS	4

FEATURE/MODEL	PT-53X54J
BASS/BALANCE/TREBLE CONTROL	X
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)
A/V PROGRAM OUT	X
AUDIO OUT (FAO: F, VAO:V)	F,V
COMPONENT INPUT (Y, Pb, Pr)	2
S-VIDEO INPUT (REAR/FRONT)	2/1
HDMI/HDCP INPUT	X

Note:
Specifications are subject to change without notice or obligation.

7. Board description table

BOARD	PART NUMBER	DESCRIPTION
A-BOARD	TNP2AH058	MAIN CHASSIS
D-BOARD	TNP2AH059	POWER SUPPLY
CD-BOARD	TNP2AA166	AUTO CONVERGENCE SENSOR
* DC-BOARD	TNP2AA163	CONVERGENCE PROCESSING
* DG-BOARD	TNP2AA173AE	MPU, VIDEO SIGNAL PROCESSIN
G-BOARD	TNP2AA164	FRONT A/V INPUT
H-BOARD	TNP2AA174AD	REAR A/V INPUTS
K-BOARD	TNP2AA165	KEYBOARD PANEL
LB-BOARD	TNP2AA161	BLUE PRT
LG-BOARD	TNP2AA160	GREEN PRT
LR-BOARD	TNP2AA162	RED PRT
R-BOARD	TNPA0615AB	IR SENSOR

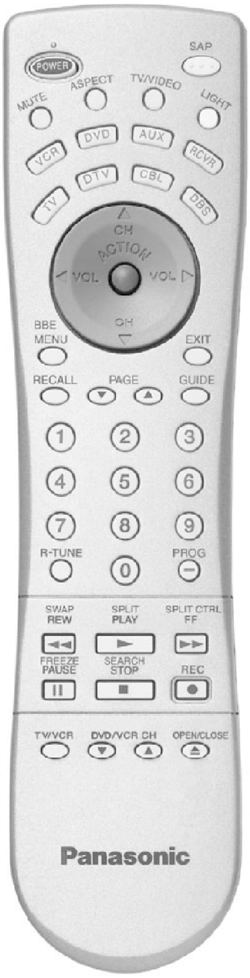
NOTE
When ordering a replacement board assembly, append an “S” to the board number

EXAMPLE
To order the A Board, the replacement board is TNP2AH058S

*

CD-Board, DC-Board and DG-Board are non-serviceable boards, except for the connector JK5001 in DG-Board. If any of these boards are defective, replace it with a new one.

8. Location of controls (EUR7603ZF0 remote)


SAP
POWER
ASPECT
TV/VIDEO
MUTE
LIGHT
DVD
AUX
VCR
RCVR
DTV
CBL
TV
DBS
CH
ACTION
VOL
VOL
CH
BBE MENU
EXIT
RECALL
PAGE
GUIDE
1
2
3
4
5
6
7
8
9
R-TUNE
0
PROG
SWAP REW
SPLIT PLAY
SPLIT CTRL FF
FREEZE PAUSE
SEARCH STOP
REC
TV/VCR
DVD/VCR CH
OPEN/CLOSE
Panasonic

POWER
Press to turn ON and OFF.

MUTE
Press to mute sound.

ASPECT
Press to change the aspect ratio of image.

TV - VCR - DVD - DBS - RCVR
Press to select a component.

ACTION
Press to acces the menu.

MENU
Press to turn BBE on or off.

RECALL
Press to display time, channel sleep timer and other options.

KEYBOARD
Press to select any channel.

R-TUNE
Press to switch to previously viewed channel or video mode.

SAP
Press to acces the secondary audio program broadcast.

LIGHT
Press to iluminate the keypad.

TV/VIDEO
Press to select TV or input mode.

VOL
Press to adjust TV sound and navigate in menus.

CH
Press to select next or previous channel and navigate in menus.

EXIT
Press to exit adjustments or menus.

GUIDE
Press to access DBS functions.

SPLIT / SEARCH
Press to access split or search functions.

DVD/VCR
Press to control DVD or VCR functions.

Note:
For additional information for this remote please refer to the owner’s manual section remote operation, listed on the parts list section.

9. Auto diagnosis feature

This receiver incorporates a self diagnosis feature. With this feature it will be easier for the technician to detect failures. There is a LED located by the keyboard on the front panel, this LED will start flashing when SOS is detected by the circuits locatedin specific areas, depending on how many times the LED is flashing, this will indicate what circuit should be checked. Make a count of flashing and see the table shown below. Please use this feature effectively especially for intermittent problems.

NUMBER OF FLASHES	POSSIBLE CAUSE
1	POWER SUPPLY AND/OR VERTICAL
2	LOW DC
3	CONVERGENCE (DC-BOARD)
4	SUB9V
5	HHS
6	IC4001
7	IC4201
8	IC4401

10. EEPROM copy jig

This PTV has a feature that allows to clone convergence from main EEPROM data adjustments from a PTV to other by connecting a jig to the PTV set, or can be used to back-up data before making adjustments. A jig part number TXFJIG01SER, is availablethrough Matsushita/Panasonic Services.

Preparation:
To connect this jig, remove the lower back cover as instructed on disassembly for service section on this service manual and insert the jig into A15 connector located on A-Board. (See figure).

Procedure to copy data:

1. **Enter to service mode and display service menu (see service mode section).**
2. **Select "AREA" DAC and then press ACTION button on remote to enter. Press VOL right/left to select one of the following options then press ACTION:**

    - Select ALL to copy all main EEPROM data
    - Select ADJ to copy only adjustment data.
    - Select FIX to copy only fix data

3. **To copy data from main EEPROM to jig, select "IN → EX" DAC and press ACTION button on remote. The register background will momentarily become yellow indicating that copy is in progress.**
4. **To copy data from jig to main EEPROM, select "EX → IN" DAC and press ACTION button on remote. The register background will momentarily become yellow indicating that copy is in progress.**

Procedure to copy convergence:

1. **Enter to service mode and display service menu**
2. **Select “FINE” DAC and press ACTION on remote.**
3. **Press “8” on remote.**
4. **Select from and then press ACTION on remote:**

    - INT to copy data from internal EEPROM to jig
    - EXT to copy from jig to internal EEPROM.

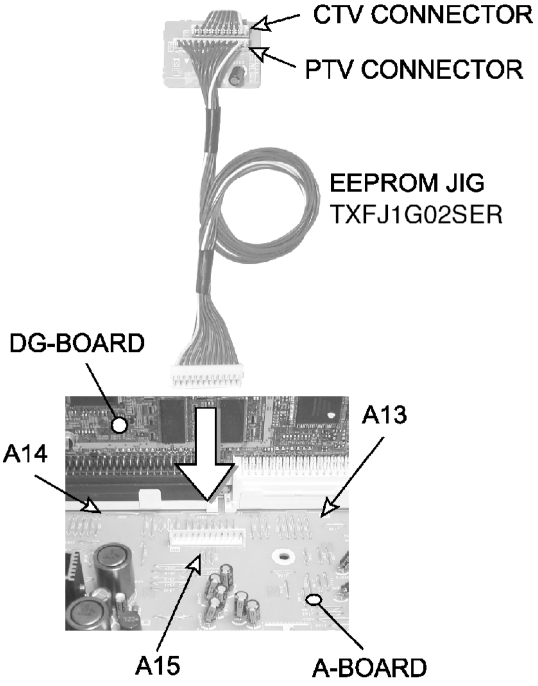
5. **Select an option from the menu with CH keys and confirm with ACTION:**

    - DEFAULT:default factory preset
    - CURRENT:to copy the current (receiver data or jig data) convergence adjustments to memory.
    - NOT USE: to back up data.
    - ALL: to copy all data.

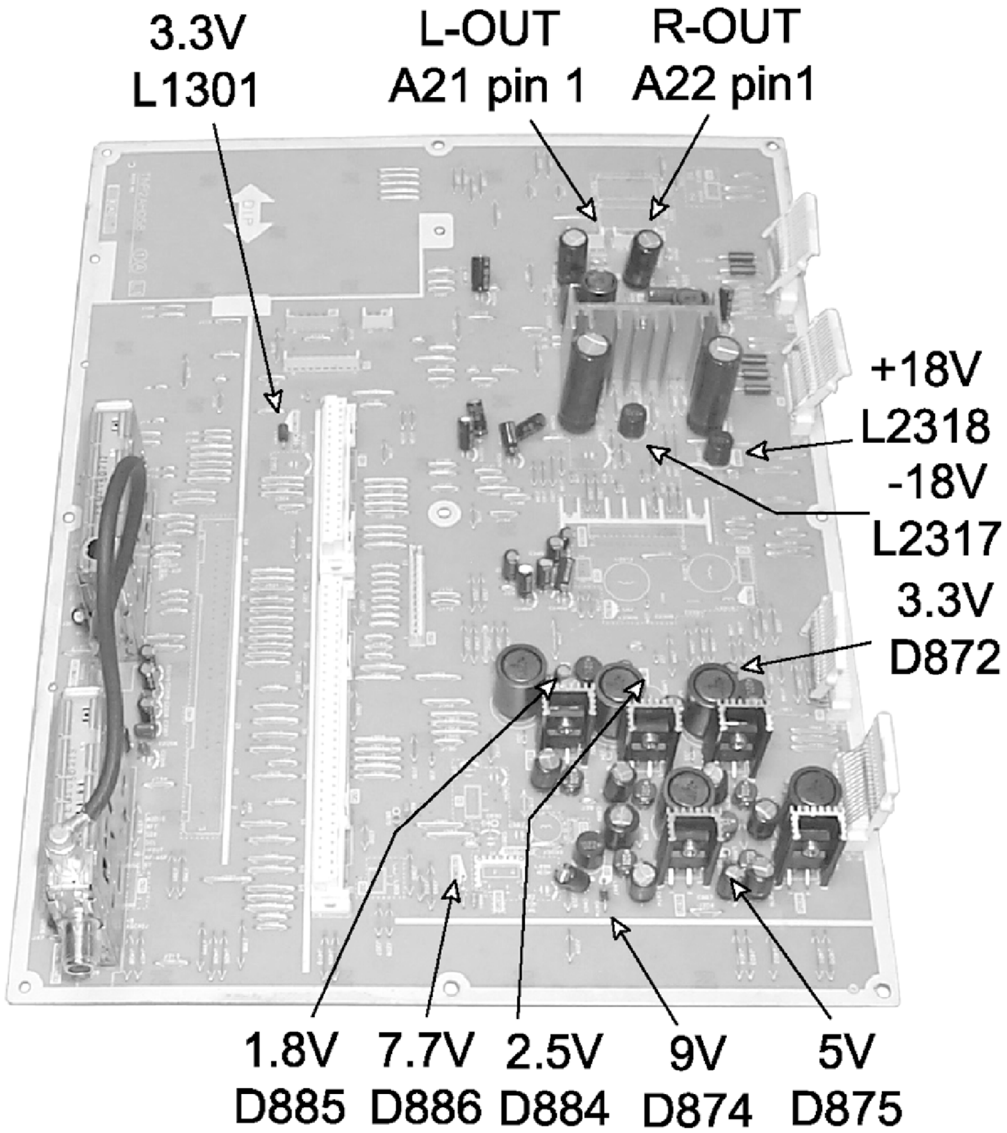
    NOTE:
    The stated as default factory preset contain the factory DATA; Use this option when data was lost or when adjustment is lost completely.

6. **Select destination to copy (INT or EXT) and confirm with ACTION.**
7. **Once an option is selected the copy process begins.**
8. **To exit “FINE” register press POWER and select “YES” option with ACTION. When the AUTO OFFSET process end, shut off the receiver.**
9. **Remove the copy jig from A15.**

EEPROM copy jig connection

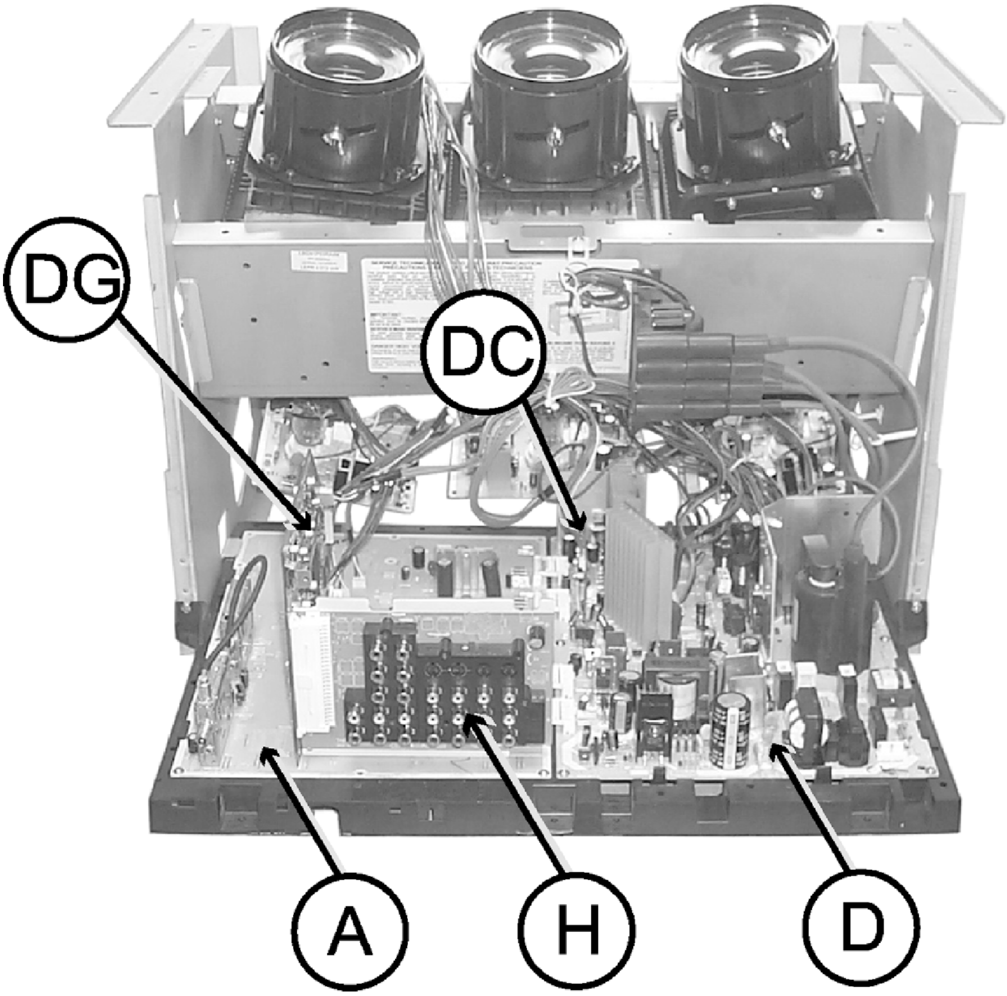

CTV CONNECTOR
PTV CONNECTOR
EEPROM JIG
TXFJ1G02SER
DG-BOARD
A13
A14
A15
A-BOARD

11. A-Board check points

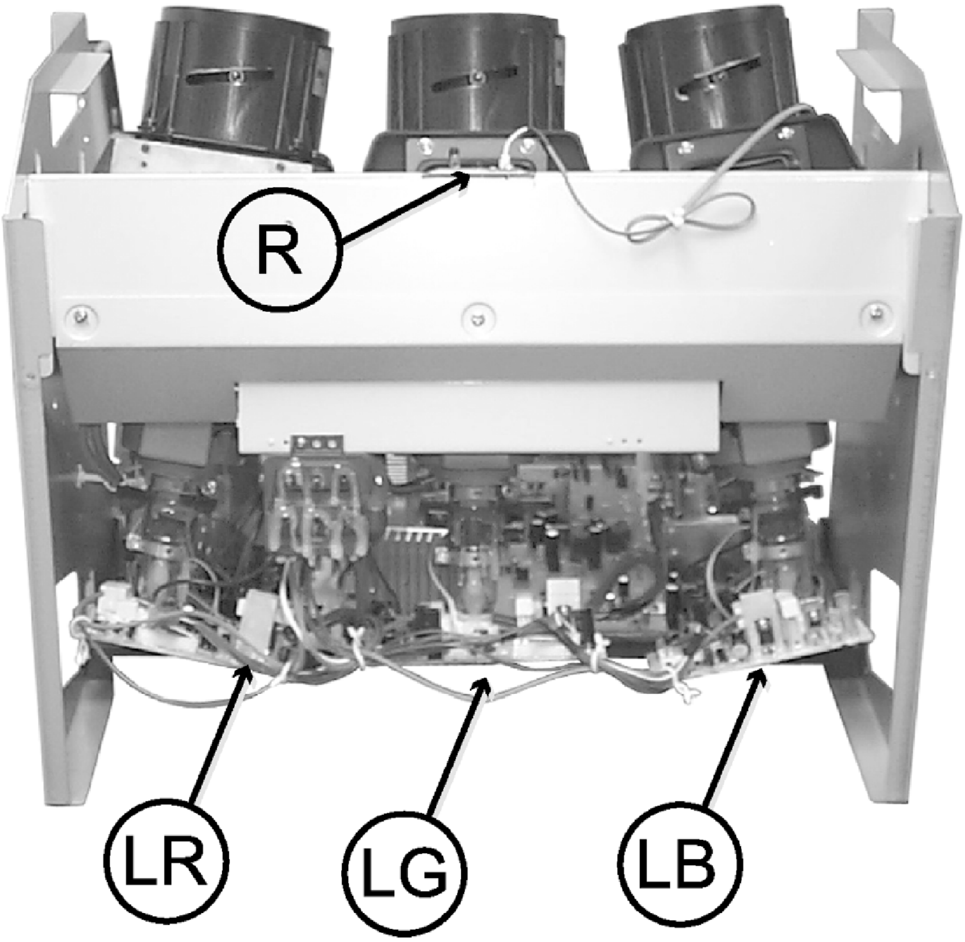

3.3V
L1301
L-OUT
A21 pin 1
R-OUT
A22 pin1
+18V
L2318
-18V
L2317
3.3V
D872
1.8V
D885
7.7V
D886
2.5V
D884
9V
D874
5V
D875

12. Chassis & boards layout (location of main components)

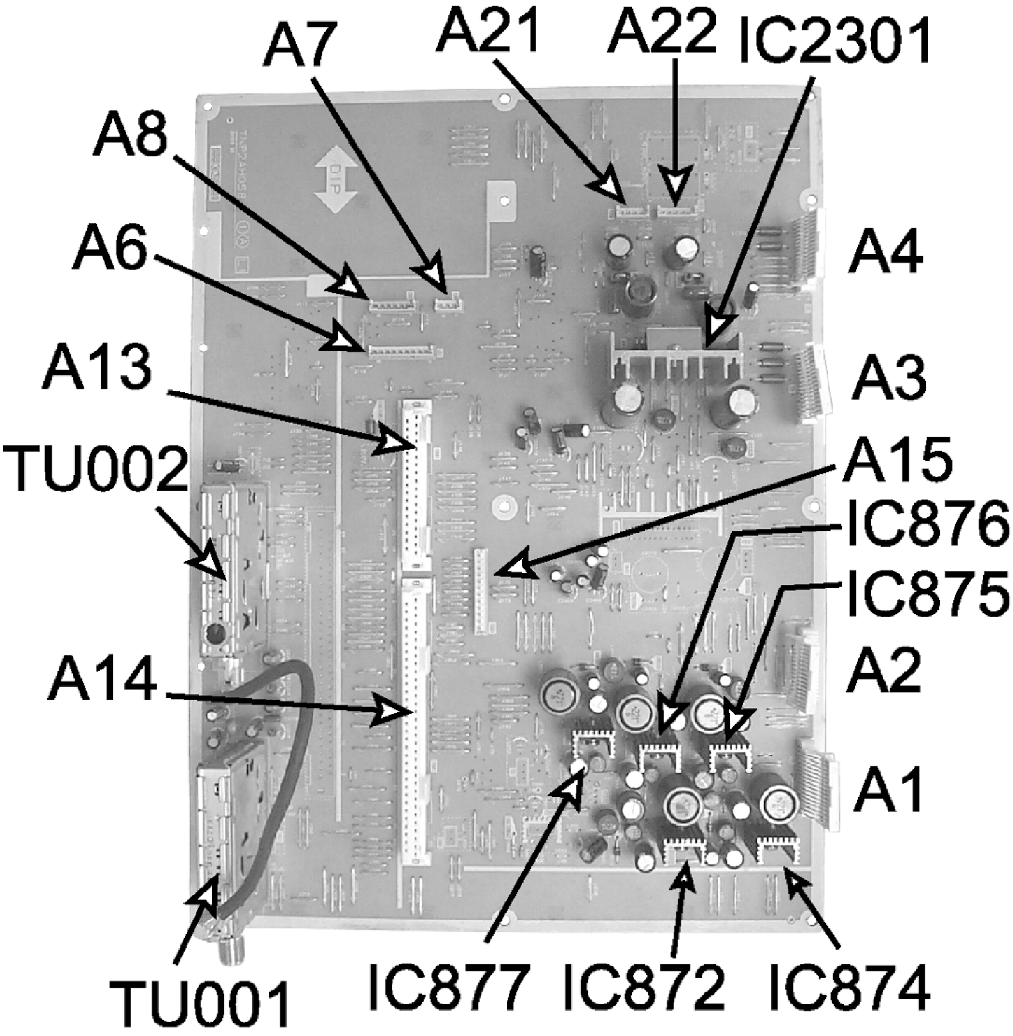
Chassis and boards layout



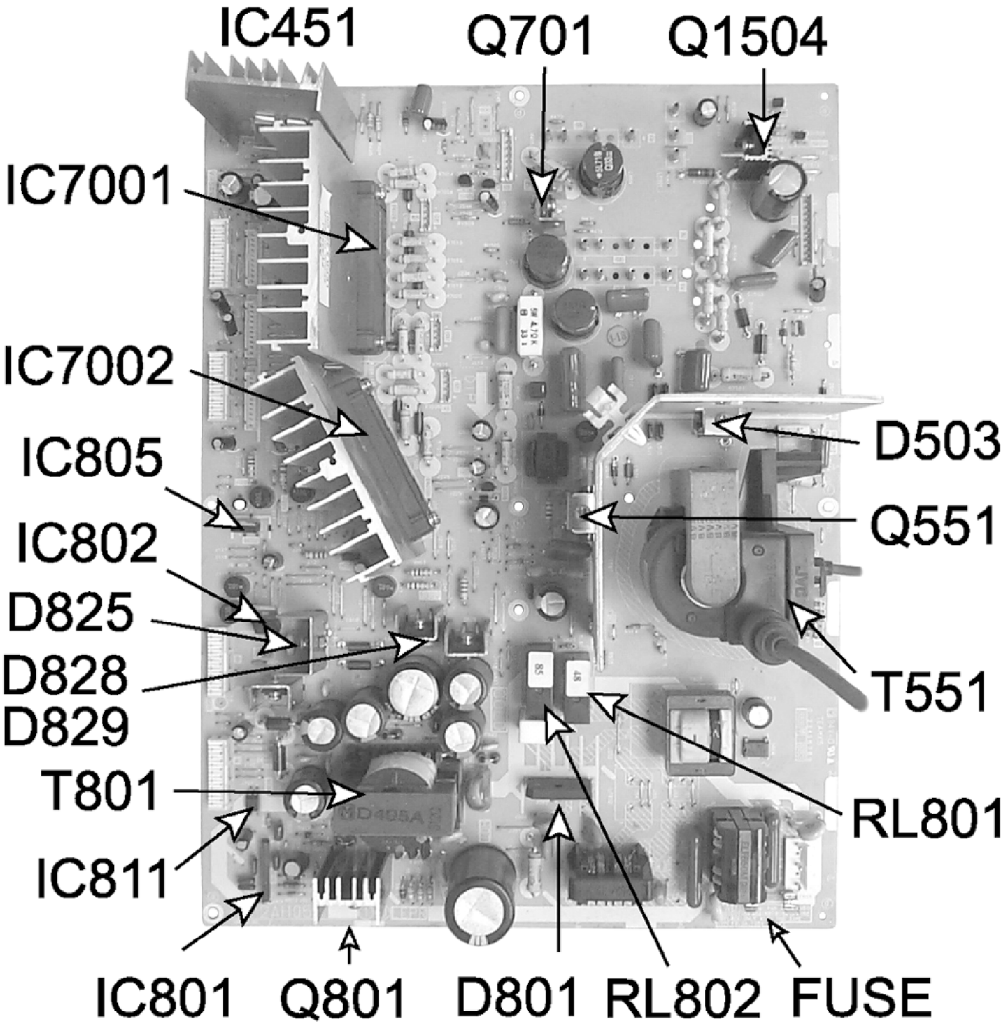
Chassis and boards (FRONT)



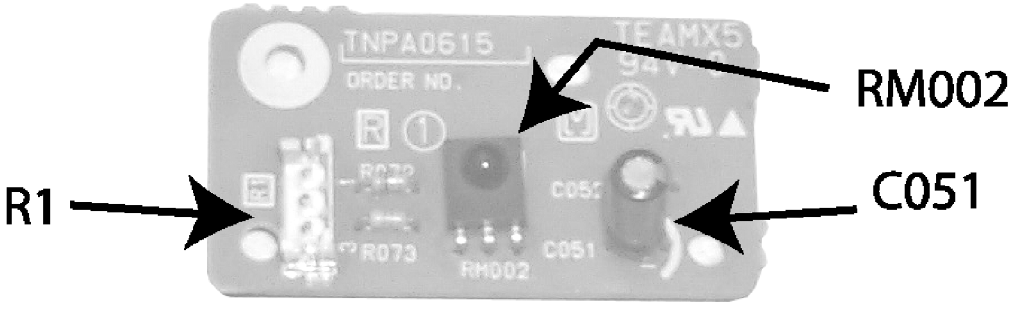
A-BOARD


A7
A21
A22
IC2301
A8
A6
A4
A13
A3
TU002
A15
IC876
IC875
A14
A2
A1
TU001
IC877
IC872
IC874

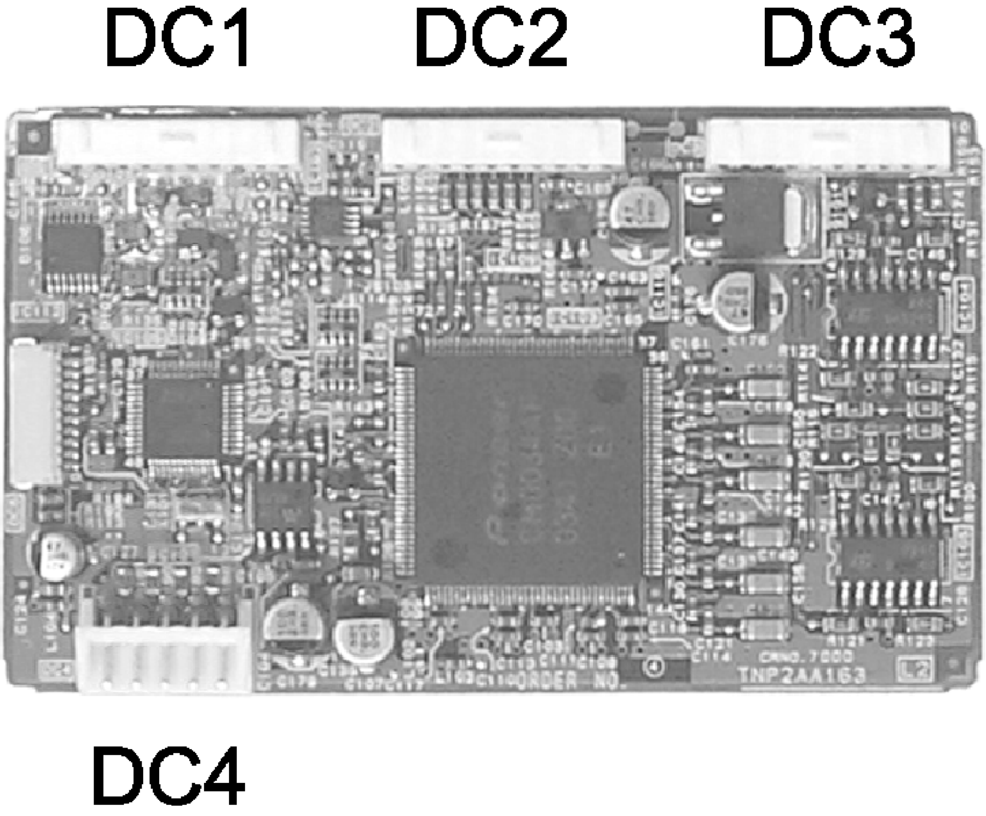
D-BOARD


IC451
Q701
Q1504
IC7001
IC7002
IC805
IC802
D825
D828
D829
T801
IC811
IC801
Q801
D801
RL802
FUSE
D503
Q551
T551
RL801

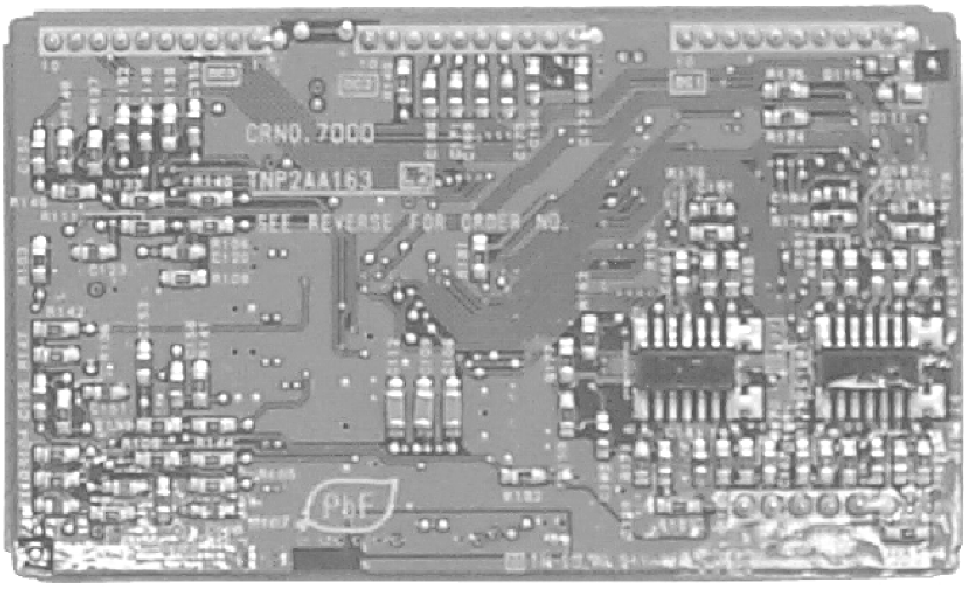
R-BOARD


RM002
R1
C051

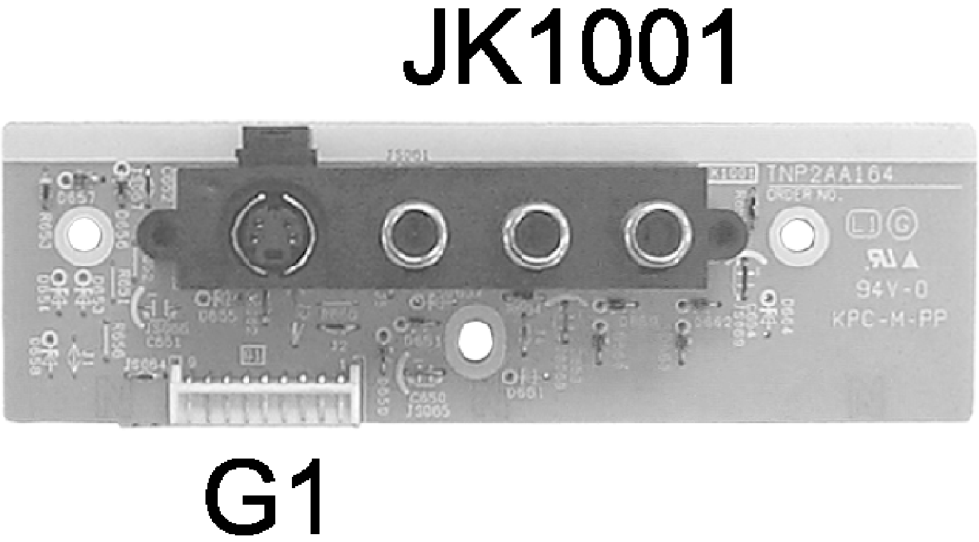
DC-BOARD (TOP)


DC1
DC2
DC3
DC4

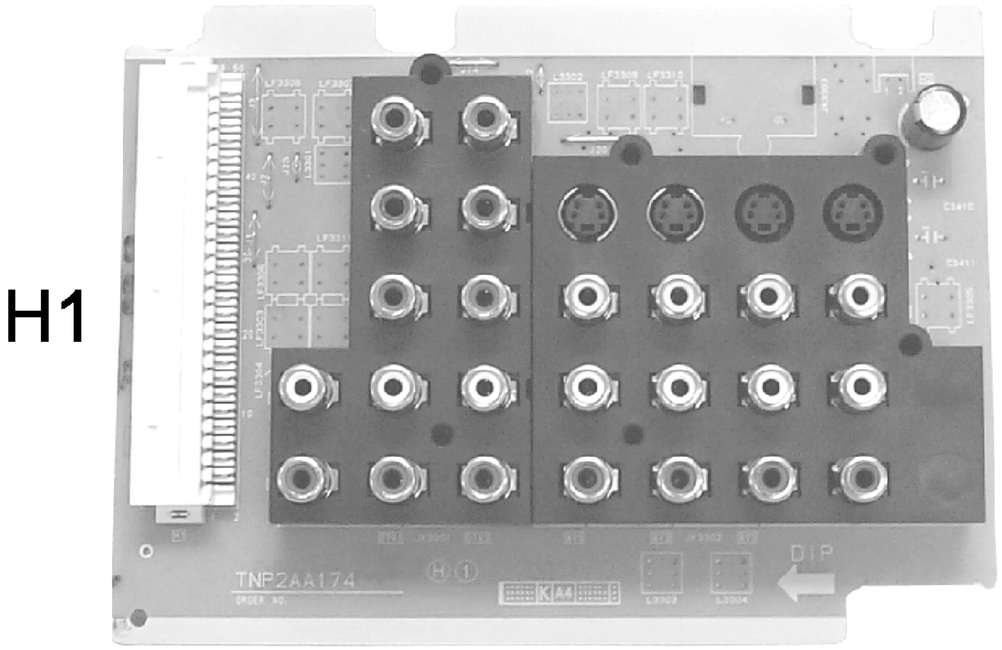
DC-BOARD (BOTTOM)



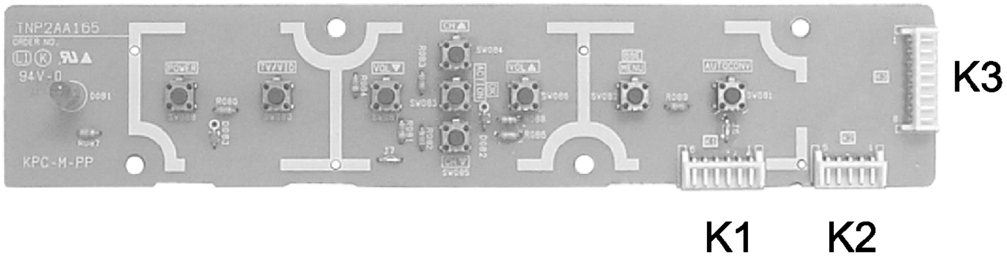
G-BOARD


JK1001
TNP2AA164
94V-0
KPC-M-PP
G1

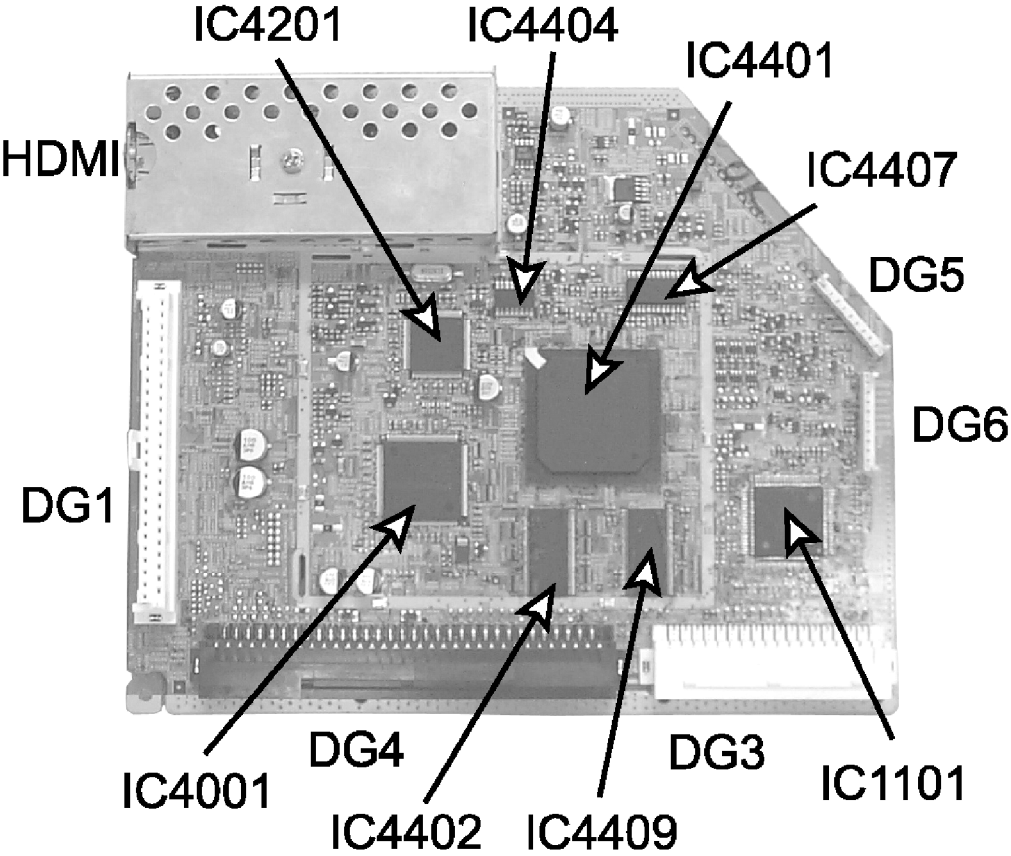
H-BOARD


H1
TNP2AA174
DIP

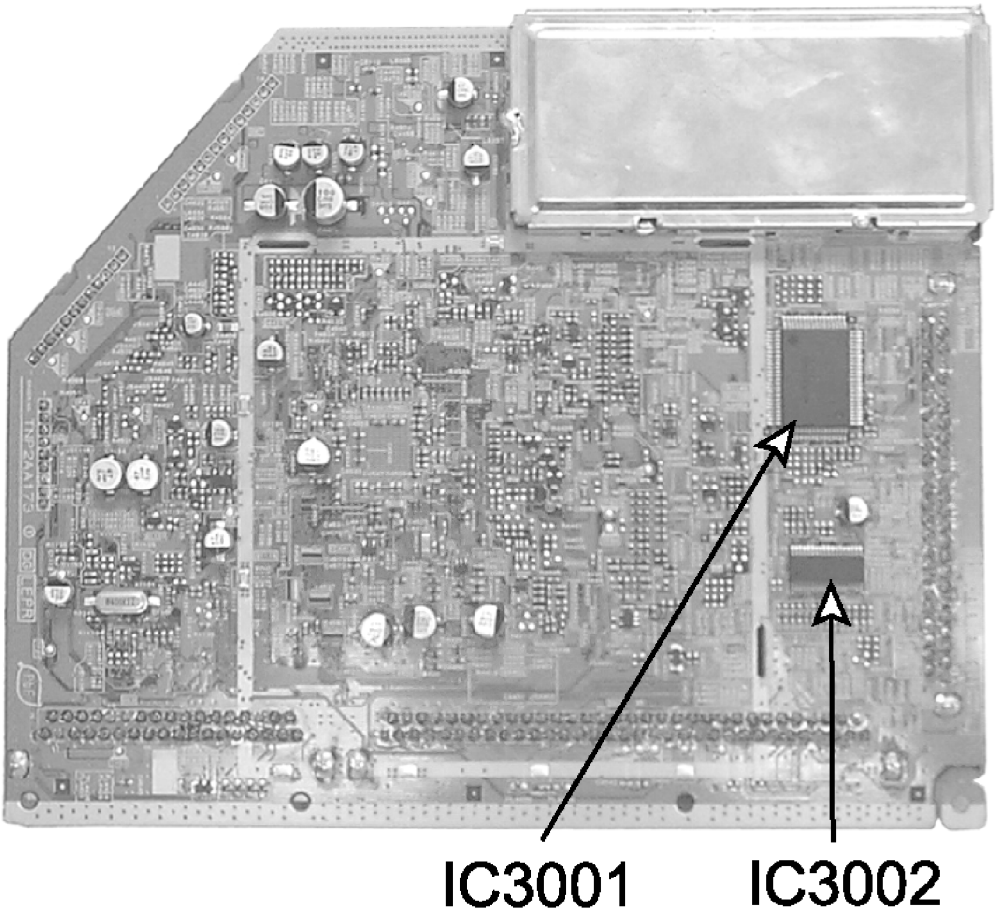
K-BOARD


TNP2AA165
94V-0
KPC-M-PP
K3
K1
K2

DG-BOARD (TOP)


IC4201
IC4404
IC4401
HDMI
IC4407
DG5
DG6
DG1
IC4001
DG4
IC4402
IC4409
DG3
IC1101

DG-BOARD (BOTTOM)



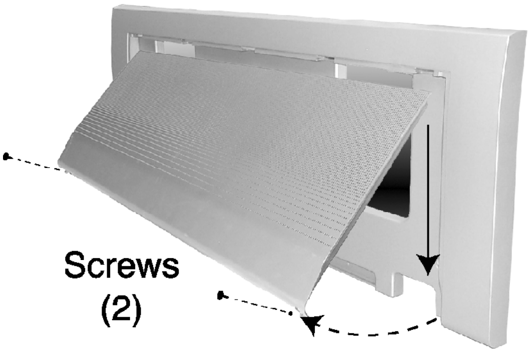
13. Disassembly for service

NOTE:
Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads, if necessary, before power is applied to PTV for service.

Speaker grille removal

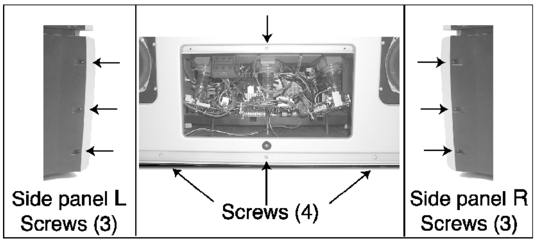
Speaker grille, is secured to the cabinet of the PTV with 1 velcro dot and 2 screws at the bottom. Take the screws out and grip panel from the bottom, pull slightly backward and at the same time pull down to uncouple the 4 tabs. When reassembling,make certain to firmly press on the panel where the velcro dot is and that the four tabs are properly inserted in the front cover.

Speaker grill removal



Front cover replacement

1. **Remove the speaker grille.**
2. **Remove the cabinet front board by removing the 2 screws in the middle section.**
3. **Remove the screws from the middle section (4) of the front panel and both side panels (3 in each side from the back, see picture).**



4. **Pull the front panel from the bottom slightly downwards to unlock the tabs and remove.**

Speakers replacement

1. **Each speaker set is conformed by a tweeter and a woofer mounted in an enclosure fixture. This fixture is fastened to the main cabinet board by 6 screws. The tweeter and woofer are mounted in the fixture with 2 screws (each speaker). It isrecommended for speaker servicing to remove the speaker enclosure.**
2. **Disconnect the R (A22) and L (A21) speaker connectors from A-board.**

IMPORTANT!!

When replacing speakers (tweeters and woofers) be sure to order the proper replacement part number. Check part number on the

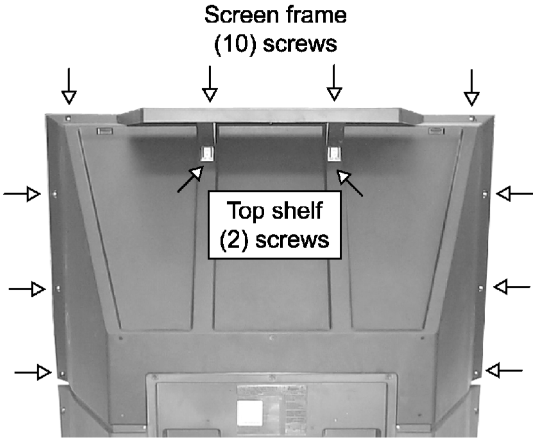
back of the speaker and order accordingly as different part numbers differ on PT-53X54J models. Also check part list whenordering.

Part number	Replace with	Description
EAST16P51A6	EAST16P51A6	Speaker Woofer
EAST6PH08P6	EAST6PH08P6	Speaker Tweeter
TAS2AA0027	TAS2AA0027	Speaker Woofer
TAS2AA0022	TAS2AA0022	Speaker Tweeter

Screen frame removal

1. **First, remove the front panel.**
2. **Below the screen, remove the 5 screws from the tabs, just below the front A/V inputs.**
3. **Remove the 10 screws from the back cover. At this point the top shelf must be removed from the back cover (2 screws).Be careful when removing the screen frame, try removing the screws from the sides first and leave the top screws at last, besure to hold the frame when removing the last screws.**

Screen frame removal (back view)



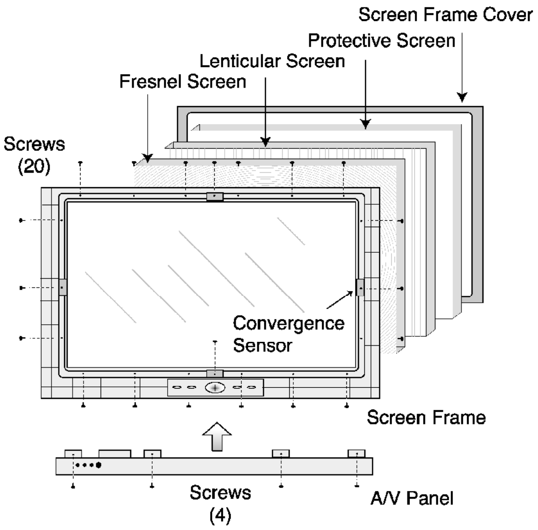
4. **Tilt the assembly forward while lifting it out of place.**
   CAUTION:

At this point the keyboard, A/V inputs and convergence sensors, must be disconnected from K-board and G-board, otherwise the cables and connectors could get damaged.

Screen assembly

1. **Remove the screen frame. See screen frame removal procedure above.**
2. **Place screen frame face down on a soft surface.**
3. **If necessary remove G-board and/or K-board.**
4. **If necessary disassemble A/V panel removing the screws (4) and tilt the panel upwards and release it from screen frame.**
5. **Remove the screws from the screen frame (20), be careful not to damage the convergence sensors (see picture).**

Screen assembly (Inside view)


Screen Frame Cover
Protective Screen
Lenticular Screen
Fresnel Screen
Screws
(20)
Convergence
Sensor
Screen Frame
Screws
(4)
A/V Panel

6. **Carefuly lift screen frame leaving the screen frame cover with the 3 screens (Fresnel, Lenticular, Protective) on top of it.**

Keyboard and front A/V inputs removal

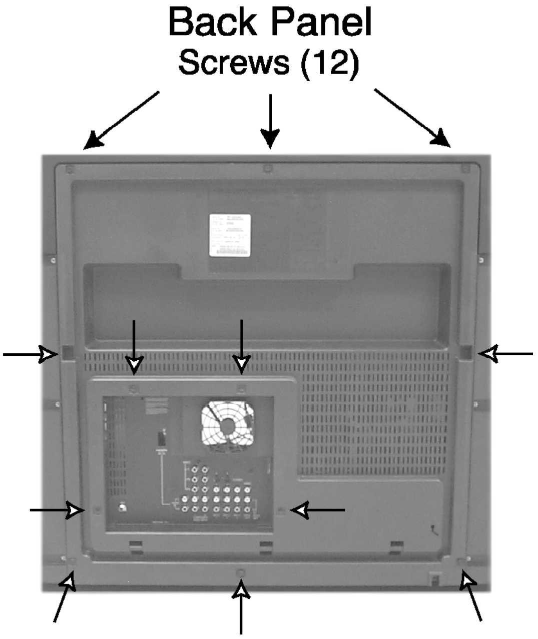
1. **Unplug the connectors from keyboard and front A/V inputs assemblies. Remove the screws affixing the keyboard (4 screws) and front A/V inputs (3 screws) and tilt the A/V panel assembly**

upward and release it fromthe screen frame.

Back panel removal

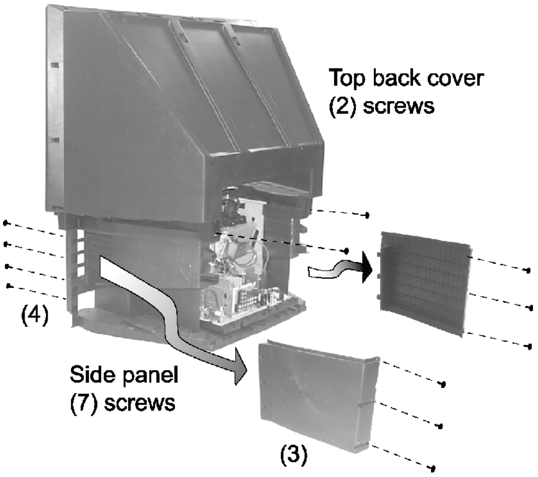
1. **The back panel is fastened to the cabinet by 12 screws. See picture for screw location.**

Back panel removal


Back Panel
Screws (12)

Main chassis block

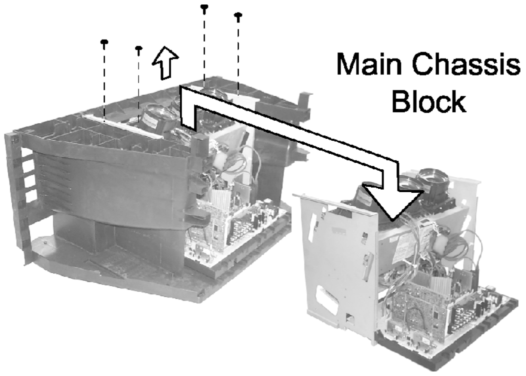
1. **After removing the screen frame and front cover, remove the side panel from each side (each side panel is fastened by 7 screws, 4 at front and 3 in the back).**


Top back cover
(2) screws
(4)
Side panel
(7) screws
(3)

2. Remove the 2 screws from the cabinet body that holds the upper cabinet cover and carefully remove it.

3. The main chassis block is secured to the main body cabinet by 4 screws on the top (see picture).

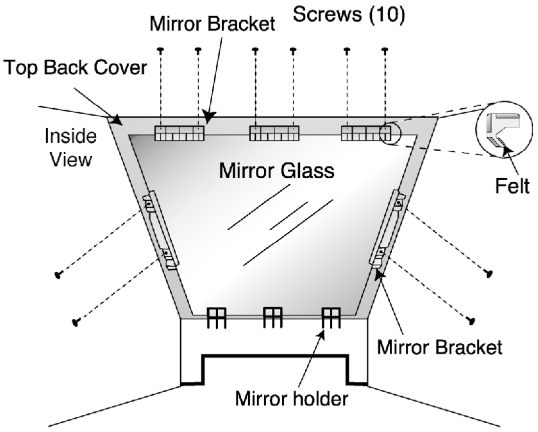
Chassis removal


Main Chassis Block

Mirror removal

The mirror is attached inside the cabinet cover. Carefully remove the cabinet cover to access its interior surface and remove the screws securing the brackets that hold the mirror at the top and sides to the mirror.

Mirror Removal (Inside View)


Mirror Bracket
Screws (10)
Top Back Cover
Inside View
Mirror Glass
Felt
Mirror Bracket
Mirror holder

13.1. Chassis assembly

The chassis assembly shown in figure includes all the electrical and optical components (light box).

Chassis back view

A/V BACK COVER ASSEMBLY
This assembly is secured to H-Board by 8 screws.

H-Board

1. **H-Board is connected to DG-board with H1 connector.**
2. **Pull carefully to the right to disconnect.**

DG-Board

1. **Plugs onto A-Board at A13 and A14 connectors (DG3 and DG4 respectively).**
2. **Remove plug cables from connectors DG5 and DG6.**

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

A-Board

1. **A-Board is secured to the chassis tray with six screws.**
2. **The A-Board is mated to D-Board by four flexible connectors (male side of connectors): A1, A2, A3 & A4. To remove this board, unplug the connectors of A-Board pulling from the sides of each connector.**

NOTE:

Some tie wraps that secure the wire dressings may need to be unfastened for chassis removal.

3. **Remove plug connector in A6 that goes to G-Board (G1).**
4. **Remove plug connectors in A7, A8 that goes to K-board (K1) and R -board (R1).**

D-Board

1. **D-Board is secured to the chassis tray with five screws.**
2. **The D-Board is mated to A-Board by four connectors (female side of connectors): D1, D2, D3 & D4. To remove this board, unplug the connectors on the A-Board pulling from the sides of each connector.**

NOTE:
Some tie-wraps that secure the wire dressings may need to be unfastened for chassis removal.

DC-Board

1. **Plugs onto the D-Board at the D21, D22 and D23 (DC1, DC2 and DC3 respectively) connectors.**

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

R-Board

1. **This board is secured to the upper front side of the light box by one screw, and plugged to R1 connector from A7 on A-Board.**

LR, LG and LB Board

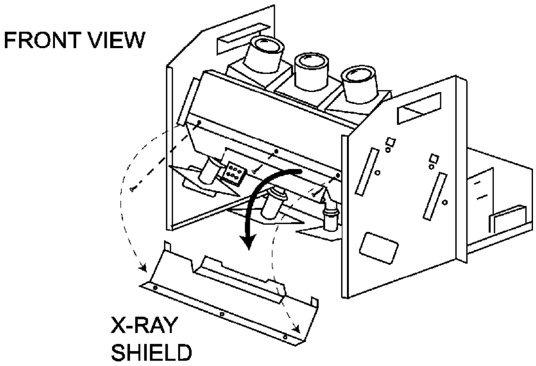
1. **Each board is plugged into the socket on the PRT neck, LR-Board on red PRT, LG-Board on green PRT and LB-Board on blue PRT.**

13.2. Disassembly for CRT replacement

To facilitate CRT replacement, the complete CRT mounting chassis does not need to be removed.

1. **Remove the main chassis block from the cabinet.**
2. **Remove the optical bracket metal cover (front side x-ray shield) by removing 3 screws on top.**

CRT replacement

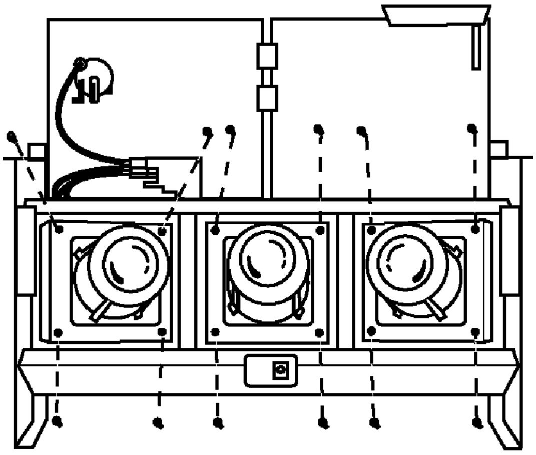


3. **Remove the defective CRT anode lead from the high voltage distributor block that is mounted on the flyback transformer. Discharge to CRT chassis.**
4. **Unplug connectors from D-Board. See board layout. D14 for red, D15 for green and D16 for blue.**
5. **Unplug the defective CRT black DAG ground connector from the CRT Board.**
6. **Remove the CRT Board from the defective CRT neck.**
7. **Remove (4) screws from the defective CRT housing.**

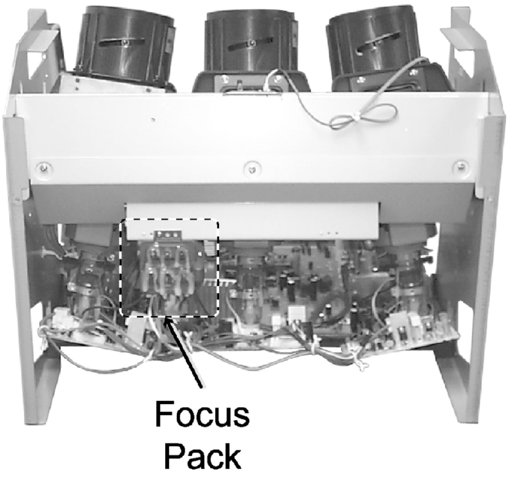
   Caution:

   Do not remove the (4) CRT lens screws. Support the CRT assembly when loosening screws.

CRT replacement



Focus pack location



8. **Release CRT anode lead from CRT chassis wire clamp and all other wires from holders.**
9. **Loosen a screw that secures the DY and remove it from the CRT neck.**

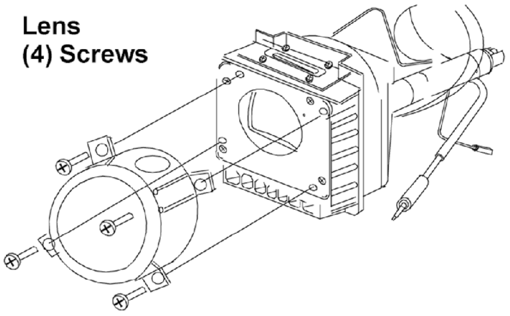
   Caution:

   To insure protection against x-ray radiation, the lens must be mounted in place at all times when power is applied to the PTV

CRT replacement

1. **Remove CRT focus lens assembly (4 screws)**

CRT assembly

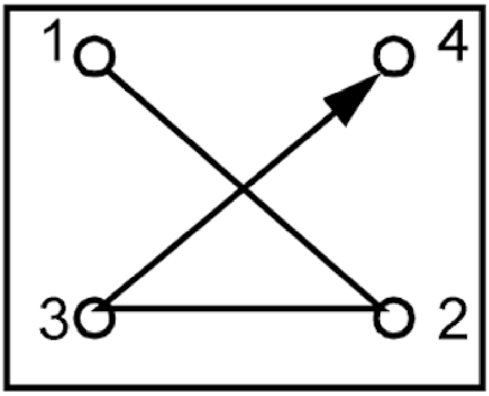


2. Lay CRT face down on a soft cloth.
3. Note position of yoke with centering tabs and remove from defective CRT.
4. Remove CRT DAG ground from defective CRT. Mount it on the replacement CRT exactly as it was on the defective CRT.

Note:
Replacement CRT is supplied with H.V. anode lead attached.

5. Wire the anode lead wire.
6. Install yoke with other CRT neck assemblies on CRT neck in the same order and position as removed from the defective CRT.
7. Press yoke against bell of CRT and tighten the clamp just snug enough so it will not easily shift.
8. Assemble CRT focus lens assembly to new CRT with (4) screws. Make sure focus lens adjustment nut is in the same location as on other CRT focus lens

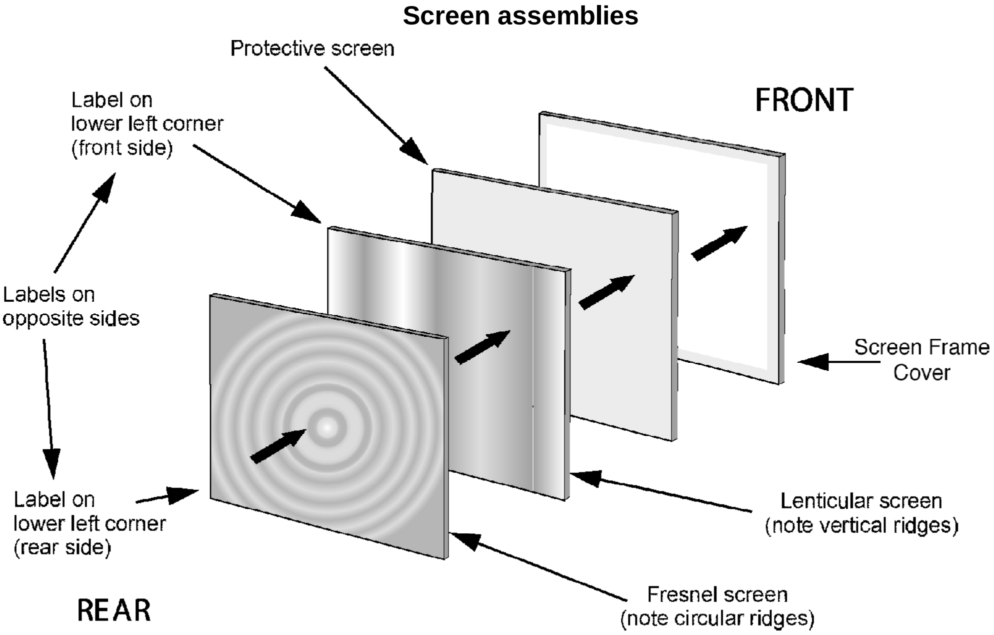
CRT screw tightening order



Note:

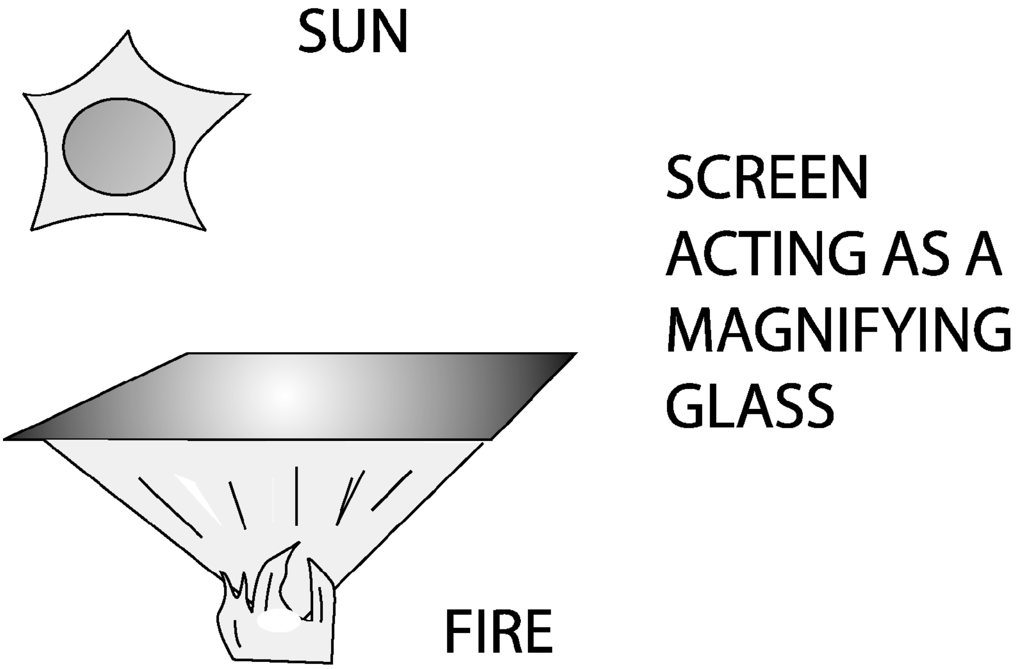
Please assemble with screws in the order shown and tighten with the same torque.

13.3. PTV screen assemblies


Screen assemblies
Protective screen
FRONT
Label on
lower left corner
(front side)
Labels on
opposite sides
Screen Frame
Cover
Label on
lower left corner
(rear side)
Lenticular screen
(note vertical ridges)
Fresnel screen
(note circular ridges)
REAR

13.4. Screen assemblies warning

When storing or disposing of screen assemblies, be sure not to place them in direct sunlight. These screens may act as a magnifying glass and could cause a fire.


SUN
SCREEN
ACTING AS A
MAGNIFYING
GLASS
FIRE

14. B + voltages table

Preparation:

Set the following controls

- **Picture to Normal**
- **Bright to Normal**
- **Volume to MIN (0)**

Procedure:

1. **Apply a COLOR BAR pattern**
2. **Connect the negative lead of the digital voltmeter to TPGND1 (cold ground).**
3. **Connect the positive lead of the digital voltmeter to each test point and confirm the B+ voltages.**

No.	D-Board Test point	Voltage
1	TPD14	138.6±1.0
2	TPD13	20.0±1.5
3	TPD12	19.5±1.5
4	TPD11	-20.5±1.5
5	TPD10	22.5±1.5
6	C845 (-)	-22.5±1.5
No.	A-Board Test point	Voltage
1	TP41	9.0±0.5
2	TP44	5.0±0.5
3	TP39	3.3±0.3
4	TP54	2.5±0.25
5	TP55	1.8±0.5

15. Service Mode (electronic controls)

This receiver has electronic technology using the IIC bus concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control functions are now performedby using “on screen display menu”. (The service adjustment mode.)

NOTE:

It is suggested that the technician reads all the way through and understand the following procedure for entering/exiting the service adjustment mode; then proceed with the instructions working with the receiver. When becoming familiarwith the procedure, the flow chart for service mode may be used as a quick guide.

15.1. Quick entry to service mode:

When minor adjustments need to be done to the electronic controls, the method for entering the service mode without removal of the cabinet back is as follows, using the remote control:

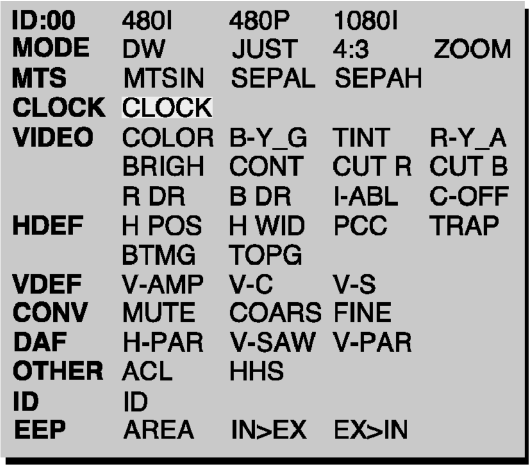
1. **Select SET-UP icon, enter “OTHER ADJ.” menu and select CABLE**

mode option.

2. Select TIMER icon and set SLEEP time for 30 Min.
3. Press “VOL UP ↑ ” to exit menus.
4. Tune to the Channel 124.
5. Adjust VOLUME to minimum (0).
6. Press VOL ← (decrease) on receiver. Red “CHK” appears in upper corner.

To toggle between aging and service modes:
While the “CHK” is displayed on the left top corner of the CRT, pressing “ACTION” and “VOL” UP on the TV simultaneously will toggle between the modes. Red “CHK” for service modeand yellow “CHK” for aging.

7. Press POWER on the remote control to display the service adjustment modes menu, select adjustment by pressing the VOL right/left buttons and CH up/down buttons on the remote and ACTION to enter the adjustment.



ID:00	480I	480P	1080I	
MODE	DW	JUST	4:3	ZOOM
MTS	MTSIN	SEPAL	SEPAH	
CLOCK	CLOCK			
VIDEO	COLOR	B-Y_G	TINT	R-Y_A
	BRIGH	CONT	CUT R	CUT B
	R DR	B DR	I-ABL	C-OFF
HDEF	H POS	H WID	PCC	TRAP
	BTMG	TOPG		
VDEF	V-AMP	V-C	V-S	
CONV	MUTE	COARS	FINE	
DAF	H-PAR	V-SAW	V-PAR	
OTHER	ACL	HHS		
ID	ID			
EEP	AREA	IN>EX	EX>IN	

15.2. Exiting the service mode:

This PTV goes out from service mode when it is unplugged or turned OFF. To exit the service mode, turn the TV OFF or unplug the PTV from AC.

Other method
Press ACTION and POWER on the receiver simultaneously for at least 2 seconds.The receiver momentarily performs a self-check, with a preset level of sound. To completely make an entire reset of the PTV unplug AC cord from AC outlet and plug it backin, then turn PTV power ON.Any programmed channels, channels caption data and some others user defined settings will be erased after performing this reset.

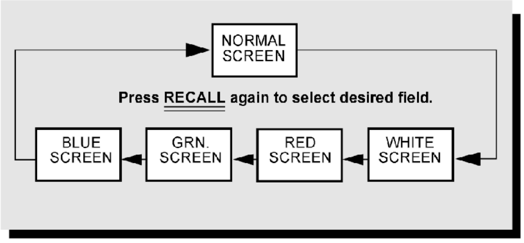
IMPORTANT NOTE

Always check that PTV exits the service mode

To check colors:

Press RECALL on the remote control when in service mode (red “CHK” is displayed) to enter the purity field check mode.

Color check



15.3. Service adjustment default values for items

DESCRIPTION	REGISTER	FORMAT	
		NTSC (480i)	HD (1080i)
MTS INPUT LEVEL	MTSIN	21	N/A
LOW SEPARATION	SEPAL	06	N/A
HIGH SEPARATION	SEPAH	19	N/A
CLOCK ADJ	CLOCK	128	N/A
COLOR	COLOR	1F	17
MAGENTA TINT ADJ	B-Y_G	40	46
TINT	TINT	89	82
YELLOW TINT ADJ	R-Y_A	AA	87
SUB-BRIGHTNESS	BRIGH	02 9C	02 C6
SUB-CONTRAST	CONT	03 0E	02 BD
RED CUT-OFF	CUT R	01 C0	01 C0
BLUE CUT-OFF	CUT B	01 C0	01 C0
RED DRIVE	R DR	50	N/A
BLUE DRIVE	B DR	50	N/A
INDIVIDUAL ABL CHECK	I-ABL	VARIABLE	VARIABLE
CUT OFF ADJ	C_OFF	00	00
HORIZONTAL POSITIONING	H POS	04 32	01 83
HORIZONTAL WIDTH	H WID	8A	51
PINCUSHION CORRECTION	PCC	55	40
TRAPEZOID	TRAP	81	81
BOTTOM CORNER PINCUSHION	BTMG	58	B0
TOP CORNER PINCUSHION	TOPG	5A	B4
VERTICAL SIZE	V-AMP	9B	00 94
VERTICAL LINEARITY	V-C	88	87
VERTICAL S CORRECTION	V-S	56	59

DESCRIPTION	REGISTER	FORMAT	
		NTSC (480i)	HD (1080i)
VERTICAL TEST POSITION	TEST POS V	N/A	13
HORIZONTAL TEST POSITION	TEST POS H	N/A	13
LOW PHASE	PHASE LOW	N/A	A0
HI PHASE	PHASE HI	N/A	05
HORIZONTAL OSD POSITION	OSD POS H	N/A	45
VERTICAL OSD POSITION	OSD POS V	N/A	6A
MUTE CONVERGENCE	MUTE	00	00
COARSE ADJ	COARS	00	00
FINE ADJ	FINE	00	00
H DAF ADJUSTMENT	H-PAR	0	0
V SAW DAF ADJUSTMENT	V-SAW	0	0
V DAF ADJUSTMENT	V-PAR	0	0
ID*	ID	00	00
AREA	AREA	FIX	FIX

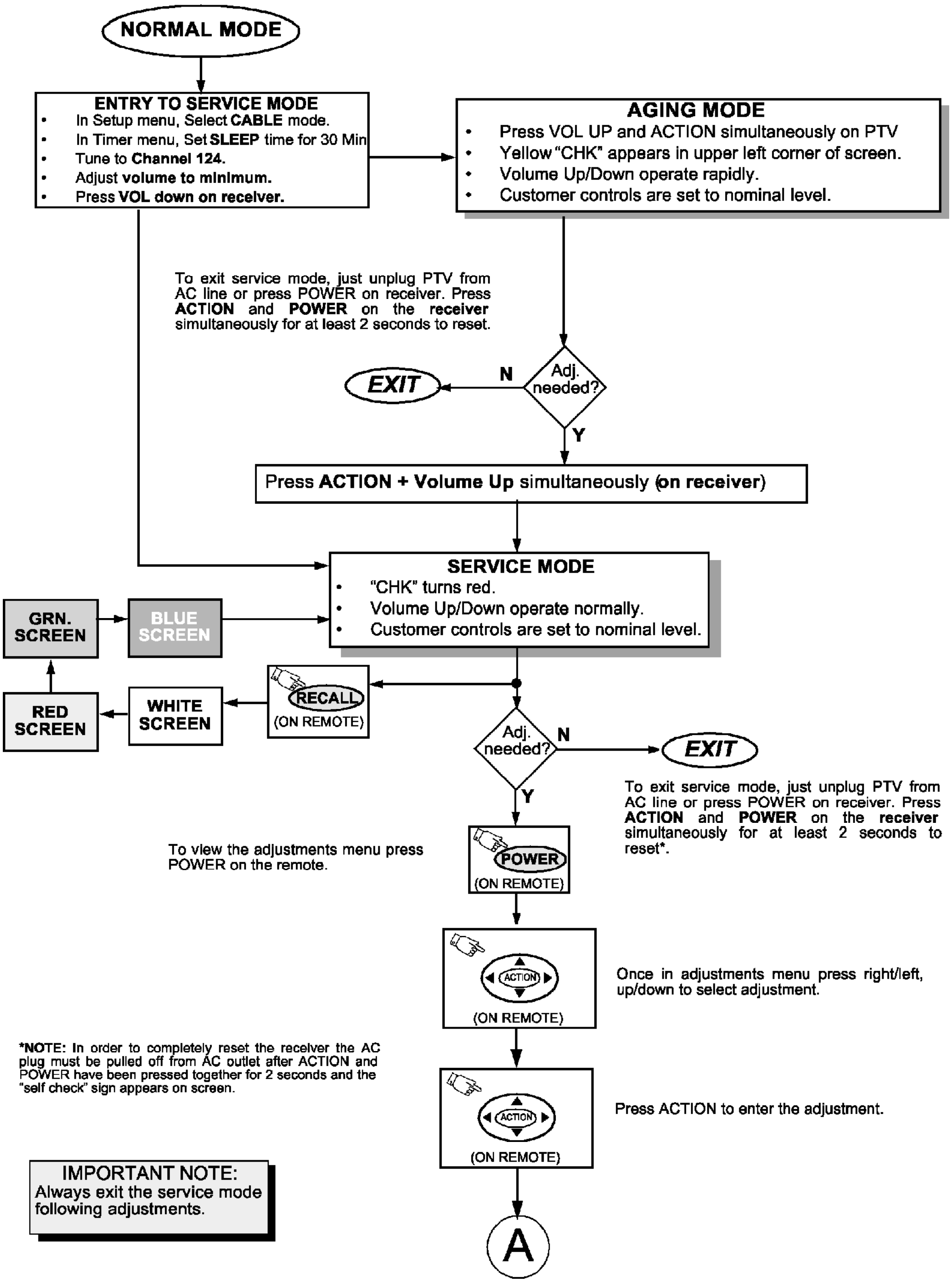
***IMPORTANT:**

The default ID register value should not be modified in any way, it has been already set to a factory default value specifically for the models listed in this manual.

NOTE:
The above table shows the default values for the service items, this values can change depending on the serviced PTV.

15.4. Instructional flow for service mode.

Instructional flow chart for service mode



ENTRY TO SERVICE MODE
- In Setup menu, Select **CABLE** mode.
- In Timer menu, Set **SLEEP** time for 30 Min
- Tune to **Channel 124.**
- Adjust **volume to minimum.**
- Press **VOL down on receiver.**

AGING MODE
- Press VOL UP and ACTION simultaneously on PTV
- Yellow "CHK" appears in upper left corner of screen.
- Volume Up/Down operate rapidly.
- Customer controls are set to nominal level.

To exit service mode, just unplug PTV from AC line or press POWER on receiver. Press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds to reset.

Press **ACTION + Volume Up** simultaneously (**on receiver**)

SERVICE MODE
- "CHK" turns red.
- Volume Up/Down operate normally.
- Customer controls are set to nominal level.

To exit service mode, just unplug PTV from AC line or press POWER on receiver. Press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds to reset*.

To view the adjustments menu press POWER on the remote.

Once in adjustments menu press right/left, up/down to select adjustment.

Press ACTION to enter the adjustment.

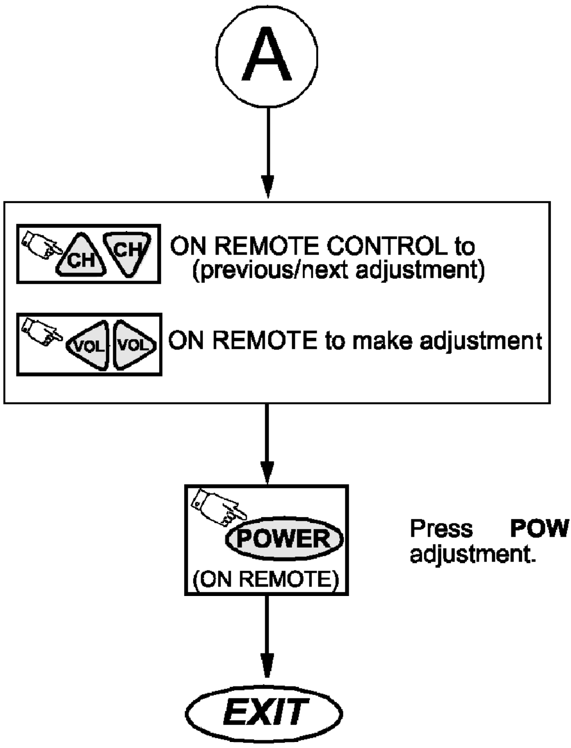
***NOTE:** In order to completely reset the receiver the AC plug must be pulled off from AC outlet after ACTION and POWER have been pressed together for 2 seconds and the "self check" sign appears on screen.

IMPORTANT NOTE:
Always exit the service mode following adjustments.

NORMAL MODE
EXIT
N
Adj. needed?
Y
GRN. SCREEN
BLUE SCREEN
RED SCREEN
WHITE SCREEN
RECALL
(ON REMOTE)
Adj. needed?
N
EXIT
Y
POWER
(ON REMOTE)
ACTION
(ON REMOTE)
ACTION
(ON REMOTE)
A

15.5. Instructional flow for service mode (continued...)

Instructional flow chart for service mode - *(continued)*


A
CH
CH
ON REMOTE CONTROL to
(previous/next adjustment)
VOL
VOL
ON REMOTE to make adjustment
POWER
(ON REMOTE)
EXIT

Press **POWER** to exit the adjustment.

Press POWER to exit DACs MENU then press **ACTION** and **POWER** on the **PTV** simultaneously for at least 2 seconds to exit service mode and reset*.

***NOTE:** In order to completely reset the receiver the AC plug must be pulled off from AC outlet after ACTION and POWER have been pressed together for 2 seconds and the "self check " sign appears on screen.

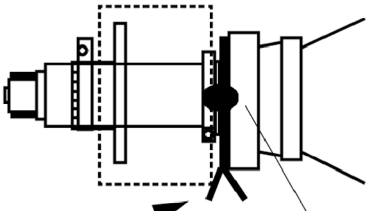
16. CRT Set Up

CAUTION:

Insure that yoke plugs are reconnected on D-Board before turning the PTV ON to prevent damage to the horizontal output transistor and/or CRTs.

1. **Connect test generator to the antenna terminal and set for a monoscope pattern.**
2. **Loosen yoke clamp, seat yoke against bell of CRT and rotate to correct yoke tilt (compare to adjacent CRT). Tighten yoke clamp.**
3. **Remove adhesive from centering tabs and set centering tabs for zero correction.**

Adhesive removal



4. Cover replacement CRT lens and static converge the tubes not replaced, if needed. Check size and linearity of pattern and adjust as required
5. Uncover replacement CRT lens and cover other two CRT lenses. Adjust electrical and optical focus (lens), if required.
6. Uncover all CRT lenses and use yoke centering magnet to converge replacement CRT (in center area of screen only) with other two CRTs. Disregard of convergence in areas other than center area.
7. Perform white balance adjustments.

16.1. Dynamic focus adjustments

1. Focus adjustments should be performed after 1 hour of aging.
2. Use oscilloscope with 100 : 1 probe.
3. Apply a crosshatch pattern to adjust focus.
4. Adjust the red, blue and green focus VR on the focus block for best focus of overall picture of each CRT.
5. To change DAF DATA, enter to service mode, then press POWER on remote to display DACs menu, then select DAC by pressing CH (RIGHT/LEFT) and VOL (UP/DOWN), then press ACTION to enter to DAC, then adjust by pressing VOL (RIGHT/LEFT);press ACTION, to save press ACTION again or OTHER key to exit without saving.

Procedure:

1. Enter to service mode and set the following default DATA

H-PAR	**+390**
V-SAW	**+2**
V-PAR	**+20**

2. Connect the scope probe to R1522 (D30 side), GND to Q551 heat sink.

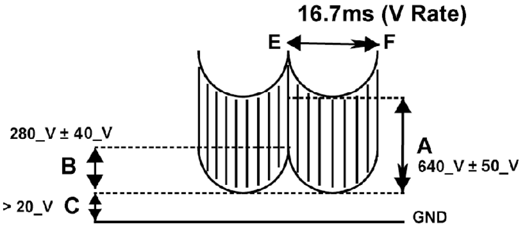
3. Confirm that level of A is 640 ± 50V, adjust / “H-PAR” DAC to set to specification level.

4. Confirm that voltage level in D30 is similar between point E and F, if not, adjust V-SAW DAC.

5. Confirm that level of B is 280 ± 40 V, adjust / “V-PAR” DAC to set to specification level.

6. Confirm that level of C is more than 20 V, adjust / “H-PAR” DAC to set to specification level.

Dynamic focus adjustment waveform



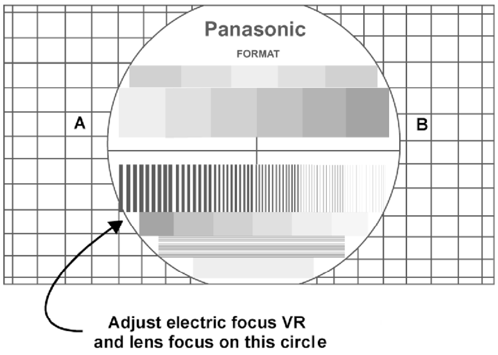
16.2. Focus - Electrical & optical adjustments

(use for minor adjustment or for final adjustment, for complete adjustment see following section.)

Electrical Adjustment

1. Apply a crosshatch with dots pattern.

Lens focus adjustment

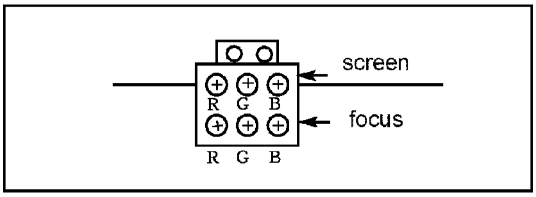


Adjust electric focus VR
and lens focus on this circle

	RED	GREEN	BLUE
Electric focus	B	A/B	A
Optical Focus	B	A/B	A

2. Set VIDEO “C_OFF” DAC from 00 to 02, and project only red. Adjust red focus VR so that focus is best.

Focus pack



3. Adjust red lens focus (mechanical) until focus is best.
4. Adjust red focus VR again.
5. Set VIDEO “C_OFF” DAC from 02 to 01, and project only green.
6. Repeat steps for green only.
7. Set VIDEO “C_OFF” DAC from 01 to 03, and project only blue.
8. Repeat steps for blue only.

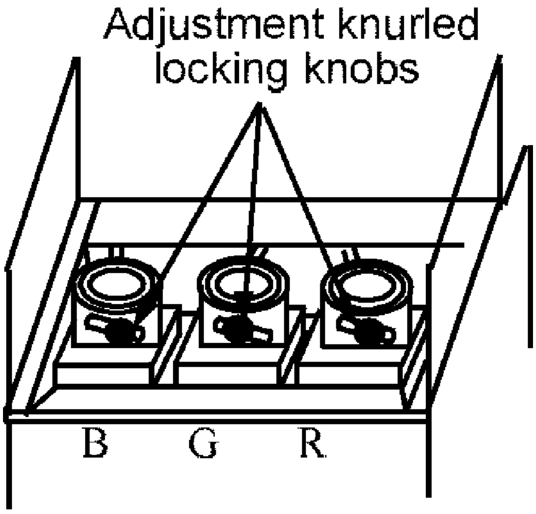
16.2.1. Focus - Optical lens adjustment

Optical adjustments

NOTE:
This adjustment normally should not require resetting unless the lenses have been replaced or adjustment has changed.

1. Optical focus adjustment is located on the top of each CRT lens system. Loosen the adjustment knurled locking knob.

Optical lens focus adjustment



REAR VIEW

2. Turn the PTV ON. Apply and view a crosshatch with dots pattern.
3. Adjust each lens focus for best focus while viewing each CRT.
4. Cover the red and blue CRT, projecting green only. Rotate the green lens for best focus around screen center area.
5. Do the same for the red focus lens while projecting red only.
6. Repeat for blue.
7. Align VM coils.

17. Electronic Adjustments

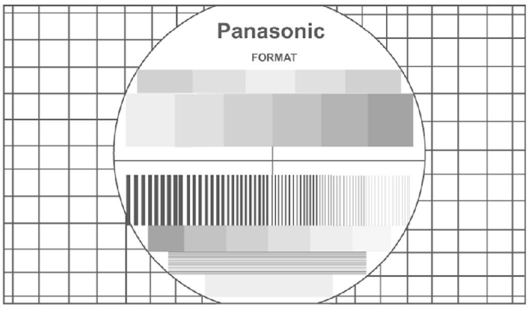
17.1. Horizontal phase adjustment (H POS)

This adjustment is intended to correct the horizontal position of the picture

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. Apply a HD 1080i crosshatch pattern that lets adjust the image to correct vertical size (see above note).
2. Adjust electrical and optical focus of red, green and blue colors so that focus is best at the center of screen.
3. Set convergence MUTE DAC from 00 to 01, and confirm disabled convergence.

4. **In service mode set VIDEO “C_OFF” DAC from 00 to 01 (to project only green).**
5. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
6. **Turn green deflection yoke until line is perfectly horizontal.**
7. **Adjust “H POS” DAC data so that pattern is in the center of screen.**
8. **Enable digital convergence by changing DAC MUTE from 01 to 00.**
9. **Set VIDEO “C_OFF” DAC from 01 to 00.**



17.2. Centering magnets adjustment

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

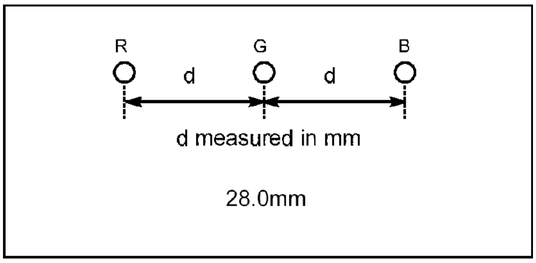
Procedures:

1. **Apply a crosshatch pattern with dots.**
2. **Set VIDEO “C_OFF” DAC from 00 to 01 to project only green.**
3. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
4. **Loose the deflection coil screw on the green CRT.**
5. **Confirm that the horizontal center line is perfectly horizontal to screen frame. If not turn deflection yoke.**
6. **Adjust green deflection coil until the horizontal center line is horizontal.**
7. **Adjust centering magnets until the green pattern is equal on left and right. Adjust also for horizontal and vertical tilt.**

NOTE:
Push deflection coil to top of CRT neck, then tighten deflection screw after adjusting each CRT centering and tilt.

8. **Set VIDEO “C_OFF” DAC from 01 to 03 to project only blue. Adjust deflection coil until the horizontal center line matches the pattern of the grid and is leveled.**
9. **Adjust blue centering magnets until the pattern center is at the appropriate distance as indicated on the following figure.**

Centering magnets adjustment



10. **Set VIDEO “C_OFF” DAC from 03 to 02 to project only red.**
11. **Adjust red deflection coil until the horizontal center line matches the pattern of the grid and is leveled.**
12. **Adjust red centering magnets until the pattern center is at the appropriate distance as indicated on figure.**
13. **Enable digital convergence by changing DAC MUTE from 01 to 00.**
14. **Set VIDEO “C_OFF” DAC from 02 to 00. Following the adjustment, make sure that all deflection coils are pushed completely toward the CRT cones and that all screws are tightened.**

17.3. Pincushion adjustment (PCC)

This adjustment is intended to correct curved sides of the picture.

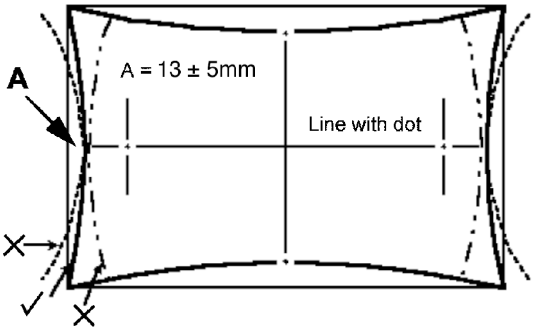
NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

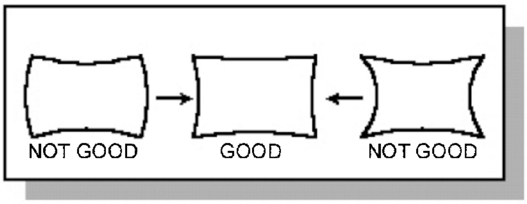
Procedure:

1. **Apply a 1080i HD crosshatch pattern that lets adjust the image to correct curved sides (see above note).**
2. **Set VIDEO “C_OFF” DAC from 00 to 01 to project only green.**
3. **Set DAC “MUTE” from 00 to 01 (disabling digital convergence).**
4. **If the distance at “A” is not 13 ± 5mm, enter H DEF “H WID” DAC and adjust with VOLUME UP/DOWN keys until it measures 13±**

5mm.

Pincushion





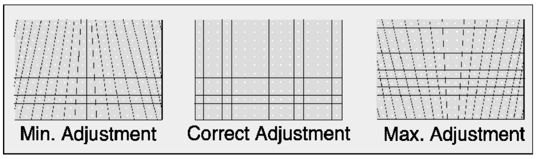
5. If not all corners of cross hatch appear in screen, enter V DEF “V-AMP” DAC and adjust until they appear.
6. Confirm that measurement of “A” has not changed.
7. Enable digital convergence by changing DAC MUTE from 01 to 00.
8. Set VIDEO “C_OFF” DAC from 01 to 00.

17.4. Trapezoid adjustment (TRAP)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

Procedure:

1. Apply a 1080i HD crosshatch pattern.
2. Set VIDEO “C_OFF” DAC from 00 to 01 and project only green.
3. Set DAC MUTE from 00 to 01 (disabling digital convergence).
4. Enter service mode, select “TRAP” and adjust DATA with VOLUME keys in remote so that lines at right and left are vertical like a solid line.



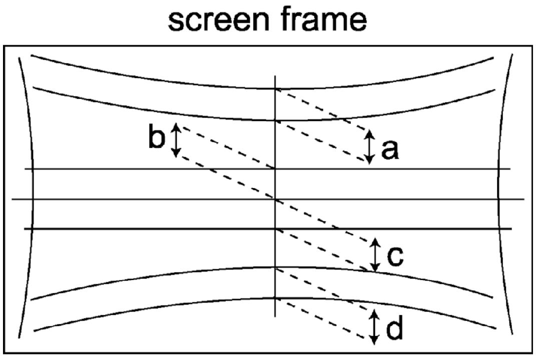
5. Enable digital convergence by changing DAC MUTE from 01 to 00.
6. Set VIDEO “C_OFF” DAC from 01 to 00.

17.5. Vertical linearity adjustment (V-C and V-S)

This adjustment is intended to make the picture vertically proportional (top, center and bottom)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a pattern that lets adjust the image to correct vertical linearity (see above note).
2. Set VIDEO “C_OFF” DAC from 00 to 01 (to project only green).
3. Set DAC MUTE from 00 to 01 (disabling digital convergence).
4. Adjust centering magnets so that the center of the pattern get aligned with screen frame center.
5. Adjust VDEF “V-C” and “V-S” DAC until vertical size is proportional on top and bottom. Confirm to correct linearity in the middle of the screen.
6. Set DAC MUTE from 01 to 00 (disabling digital convergence).
7. Set VIDEO “C_OFF” DAC from 01 to 00.



a=d, b=c

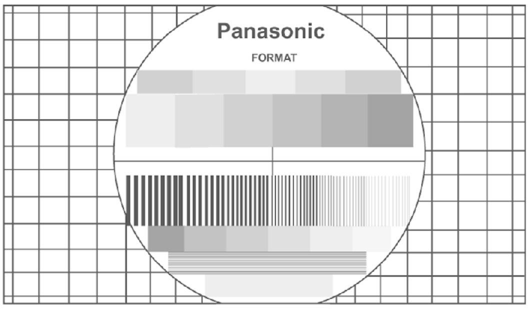
17.6. Vertical size adjustment (V-AMP)

This adjustment is intended to correct the vertical size of the picture.

NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. **Apply a pattern that lets adjust the image to correct vertical size (see above note).**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 (to project only green).**
3. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
4. **Adjust centering magnets so that the center of the pattern get aligned with screen frame center.**
5. **Adjust VDEF "V-AMP" DAC until vertical size is proportional on top and bottom.**
6. **Set DAC MUTE from 01 to 00 (disabling digital convergence).**
7. **Set VIDEO "C_OFF" DAC from 01 to 00.**

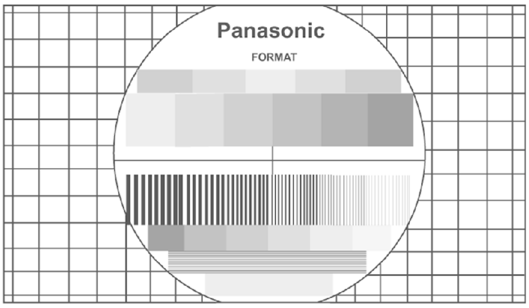


17.7. Horizontal size adjustment / (H_POS)

This adjustment is intended to correct the horizontal position of the picture.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. **Apply a 1080i HD pattern that lets adjust the image to correct horizontal position (see above note).**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 to project only green.**
3. **Set DAC "MUTE" from 00 to 01 (disabling digital convergence).**
4. **Turn green deflection yoke until line is perfectly horizontal.**
5. **Adjust "H WID" DAC data so that pattern has the correct horizontal size.**



6. Set DAC MUTE from 00 to 01 (disabling digital convergence).
7. Set VIDEO “C_OFF” DAC from 01 to 00.

17.8. Horizontal size adjustment (H WID)

This adjustment is intended to adjust horizontal width of the picture.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a pattern that lets adjust the horizontal size.
2. Set VIDEO “C_OFF” DAC from 00 to 01 to project only green.
3. Set DAC “MUTE” from 00 to 01 (disabling digital convergence).
4. In service mode, adjust “H WID” DAC until the picture horizontal size is balanced at left and right side of screen.
5. Set DAC “MUTE” from 01 to 00 (disabling digital convergence).
6. Set VIDEO “C_OFF” DAC from 01 to 00.

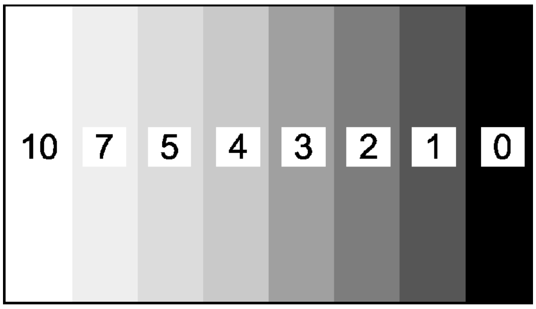
17.9. Sub-Bright adjustment (BRIGH) and ABL check

This adjustment is intended to set 7.5 IRE signal to black level mode.

Procedure:

1. Set PICTURE MODE TO VIVID, PICTURE settings to normal, NATURAL COLOR to OFF and COLOR TEMPERATURE to NORMAL.
2. Connect meter (positive lead) to D31 pin 2 and (negative lead) to D31 pin 1.
3. Apply a color bar with no color or if available a grey levels pattern (see picture).

Gray bar pattern.



4. Adjust DAC “BRIGH” data so that bar 1 becomes near black like bar 0.
5. Apply an HD 1080i signal and repeat this adjustment for HD 1080i mode.
6. To check ABL apply a white pattern and put user bright control (BRIGHTNESS in Picture menu) control to max. and confirm that reading on meter is 12.7 ± 0.8V.

17.10. Individual ABL Check (I-ABL)

Procedure:

1. In PICTURE menu set the picture to “NORMAL”.
2. Apply a pure blue flat signal from a signal generator or another source.
3. In service mode select “I-ABL” DAC from service menu.
4. Confirm that the 3 hex values that appear on screen (below the “I-ABL” label) are close to 0, i.e. “00 00 00”
5. If the “I-ABL” values differ too much from 0, repeat bright and ABL adjustment again.

17.11. Red, green & blue screen Cut-Off

1. Use either a no input signal condition or raster from the NTSC generator.
2. Observing the green tube directly or via a reflective surface, adjust the VR on focus pack for the green tube for minimum noise.
3. Adjust the noise level in the red and blue tubes to match the noise level in the green tube.

17.12. White balance adjustment

NOTE:
Use a 7 gray step pattern in this adjustment. This pattern can be obtained from a NTSC generator applying a bar signal without color.

This adjustment requires the service user skills in observing what a screen without color should look like (white picture).

Preparation:

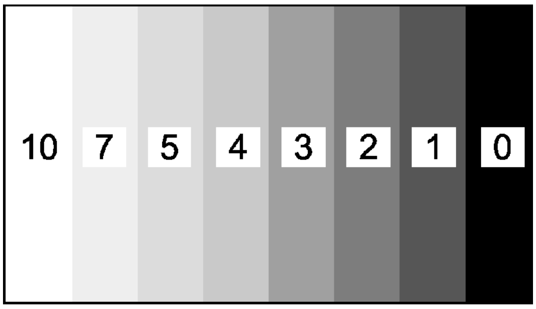
1. Set the following in the user picture menu as follows:

- **PIC MODE to VIVID**
- **COLOR to minimum (0)**
- **PICTURE to max (63)**
- **BRIGHT to center (31)**
- **SHARPNESS to minimum (0)**
- **TINT to center (31)**
- **NATURAL COLOR to OFF**
- **COLOR TEMPERATURE to COOL**

1. Enter service mode.

2. Apply a black and white pattern to one of the video inputs (see above note) color bar with no color.

Gray bar pattern.



3. Enter service mode menu, select “C_OFF” register and change value from 00 to 01 to display green color only.

4. Adjust screen VR until bars with 7 and 5 IRE do not have any difference tone between them.

5. Select “C_OFF” register and change value from 01 to 02 to display

red color only.

6. **Adjust screen VR until bars with 7 and 5 IRE do not have any difference tone between them.**
7. **Select “C_OFF” register and change value from 02 to 03 to display blue color only.**
8. **Adjust screen VR until bars with 7 and 5 IRE do not have any difference tone between them.**
9. **Select “C_OFF” register and change value from 03 to 03 to display all three colors and check white color.**

17.12.1. High light white balance adjustment

1. **Adjust DAC R_DR for red and B_DR for blue adjustments.**
2. **Make sure the screen is not blue or green. The screen should be white in the white area.**
3. **Check the black and white area for a black and white picture with even shades of gray and no color tint in the picture.**

17.12.2. Low light white balance adjustment

1. **Adjust DAC CUT_R for red and DAC CUT_B for blue.**
2. **Check the screen for even white in all areas, no color.**
3. **Check the black and white pattern for a black and white picture, even shades of gray and no color tint in the low light areas.**
4. **Repeat the high light and low light white balance again until the white balance tracks from high light to low light.**

17.13. Color adjustment (TINT, B-Y_G, R-Y_A)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

This adjustment requires that the servicer use the skills in observing what a colorbar pattern should looks like.

Preparation:

1. **Set the following in the user picture menu as follows:**

   - PIC MODE to VIVID

- **COLOR to center (31)**
- **PICTURE to max (63)**
- **BRIGHT to center (31)**
- **SHARPNESS to min. (0)**
- **TINT to center (31)**
- **NATURAL COLOR to OFF**
- **COLOR TEMPERATURE to COOL**

Procedure:

1. **Apply a color bar pattern**
2. **Adjust DAC “TINT” so that the fourth bar from right to left becomes purple and good color balance.**
3. **If the adjustment is high, the bar will look pinkish, if it is low will look bluish.**
4. **Adjust “B-Y_G” so blue look natural, and the rest of the colors become in balance.**
5. **Adjust “R-Y_A” so red look natural, and rest of the colors become in balance.**
6. **Check that white bar is real white, no bluish or reddish or tending to become grey.**

17.14. Tint and color check

Set picture mode to VIVID mode. Again, the service ability to see color and the balance of color is important for these adjustments.

Tint check

1. **In picture menu set PICTURE NORMAL to YES.**
2. **Apply color bars to the video input.**
3. **Magenta is composed of two colors, blue and red.**
4. **Check to see that magenta does not have too much blue or too much red.**
5. **Check cyan. Cyan is composed of blue and green. It should not have too much blue or green.**

6. Use a test signal from a VCR or DVD disk that has a pre-recorded close up of a signal that has good flesh tones.
7. The signal from the VCR or DVD player should look normal.

Color Check
Using a clean RF or video signal, set the color level so that it does not saturate or appear harsh. Make sure that color is not set so that it appears dull and washed out. Look for natural colors, try to adjust the picture to appear as a normalphotograph.

17.15. MTS circuit adjustment

Note:
It is important to adjust the MTS circuit in the order shown below.
The MTS circuit adjustment require two steps:

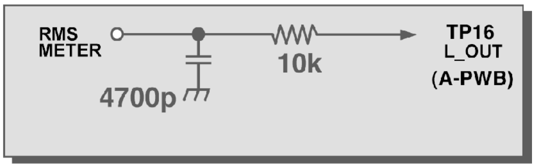
1. Input level adjustment.
2. Stereo separation adjustment.

Input level adjustment (MTSIN)

Preparation:

1. Connect an RMS meter (A.C. range) with filter jig as shown:

Filter jig



2. Connect an RF signal generator to the RF antenna input.

Procedure:

1. Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 300Hz, 100% modulation, monaural (70 ± 5dB, 75 Ω open, P/S 10dB).Make sure to turn off 75 μ s pre-emphasis.
2. Adjust DAC “MTSIN” MTS-INPUT data until the voltage measured is 106 ± 6.0mV RMS.

Stereo separation adjustment (SEPAL & SEPAH)

Preparation:

1. **Connect an RF signal generator to the RF antenna input.**
2. **Connect an oscilloscope probe to TP17 (R_OUT, A-board).**

Procedure:

1. **Set PTV to Stereo Mode (in the audio menu).**
2. **Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 300Hz, 30% modulation, stereo (left only) (70dB ± 5dB, 75 Ω OPEN, P/S 10dB).**

Note:
Set the 30% modulation with the pilot light SW and N.R. switches OFF then turn them ON while testing.

3. **Adjust MTS low level separation “SEPAL” DAC data (in the service menu) until the amplitude of the measured waveform on the scope is minimum.**
4. **Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 3KHz, 30% modulation, stereo (left only). / (70dB ± 5dB, 75 Ω OPEN, P/S10dB).**

Note:
Set the 30% modulation with the P.L and N.R. switches OFF then turn them ON while testing.

5. **Adjust MTS High Level Separation “SEPAH” DAC data until the amplitude of the waveform measured on the scope is minimum.**
6. **Repeat above steps 2 through 5 until the amplitude is at minimum for both signals.**

17.16. Clock Adjustment (CLOCK)

Preparation:
Connect the frequency counter from TP24 (A-Board) to cold ground.

Note:
Frequency Counter probe capacitance should be 8pF or less.

Procedure:

1. Turn the PTV "ON" with the A.C. power applied.

2. Measure TP24 (A-Board) for frequency and record the reading.

Note:
Pin measurement must have at least four digits of resolution following the decimal point. Example : 000.0000

3. Place the PTV into service mode for making electronic adjustment, select the clock adjustment DAC CLOCK and change value to 128.

4. Calculate and set CLOCK based on the following formula:

$$CLOCK = 128 + 0.450 x 106 x \frac{\{732.422 - \text{TP24}\,[\text{Hz}]\}}{732.4220}$$

Note:
TP24 measurement will not change regardless of the value stored in CLOCK.

18. Convergence adjustment

Turn PTV on and allow it to warm up for 30 minutes prior to perform adjustments (apply a WHITE PATTERN).

Helpful Hint:
EEPROM jig can be used to adjust convergence, by copying convergence adjustment from a convergence adjusted PTV to other. Refer to EEPROM copy jig section on this service manual. Also EEPROM copy jig can be used to back-up the data before to performadjustments.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

IMPORTANT NOTICE:
It is strongly recommended to first read and understand the following section prior to make any

adjustment.

This PTV uses the scheme described below to correct for misconvergence of the three CRT projection tubes. There are various modes to this operation.

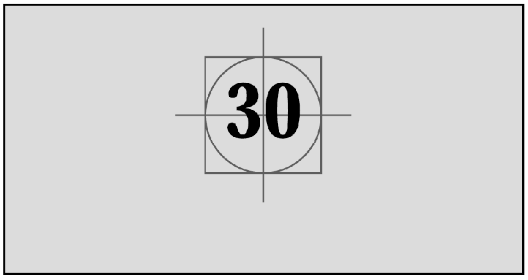
Preparation:
Place the convergence alignment template (see Convergence alignment template section on this manual) over the PTV screen. Align the center lines of the template with the mechanical center markers on the PTV screen frame. If the template is not available,create one using the dimensions provided in Convergence alignment template section on this manual.Remote control must be used during the procedure.

Procedure:
Apply the convergence alignment template to the PTV screen frame to converge the green raster only. Remove the convergence alignment template following this alignment. The red and blue rasters can then be aligned to the green raster.

Raster Set-Up:

1. **Enter to service mode (red CHK).**
2. **In SET-UP (menu) enter to “Other Adj.” menu and set CONVERGENCE values (GH, GV) to 0.**
3. **Cover red & blue lens with caps.**
4. **Apply a pattern to adjust with 1080i HD format:**
5. **Select “COARSE” DAC, then press ACTION to enter to “Coarse adjustment” mode.**
6. **Press “0” key on remote.**
7. **Press ACTION key on remote to enter to “TEST_POS” mode.**
8. **Move pattern by pressing VOL right - left and CH up - down so that the cursor center overlap monoscope pattern center.**

Aligned cross-hair pattern with center of picture pattern

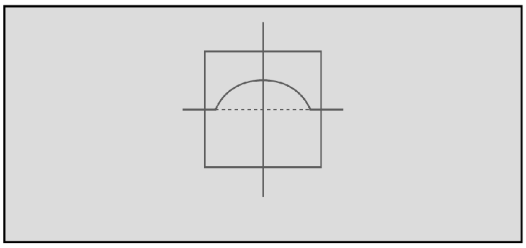


9. **Press “5” key on remote to exit superimpose mode (monoscope**

pattern disappear).

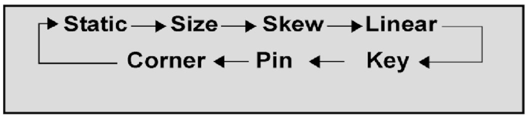
10. Press “TV/VIDEO” key to enter “DATA_POS” mode
11. Adjust by pressing VOL right - left so that peak of curve is the same position as center of cursor.

Symmetrical shape



12. Press “TV/VIDEO” key on remote to enter “OSD_POS” mode.
13. Press “5” key on remote so that monoscope pattern appears (superimpose mode)
14. Move cursor by pressing VOL right - left and CH up - down so that cursor center overlap monoscope pattern center
15. Press “0” key to go back to “Coarse adjustment” mode.
16. Press “TV/VIDEO” key to cycle through “Coarse adjustment” options

“COARSE” modes cycle



17. To change to “Fine Adjustment Mode” options (“FINE” DAC), press “TV/VIDEO” key on remote for at least 3 seconds, to go back to “Coarse
Adjustment Mode” options press “TV/VIDEO” on remote again for 3 seconds.
18. In “Fine Adjustment Mode” options, press “MUTE” key on remote to switch between “cursor” mode and “data” mode.

    - Cursor mode: Allows cursor movement by pressing VOL right - left and CH up - down.
    - Data mode: Allows making adjustment by pressing VOL right - left and CH up - down.

19. **Either “Coarse Adjustment” options or “Fine Adjustment” options, press “R-TUNE” repeatedly key on remote to cycle through different color adjustments (R, G, B, White)**

20. **In “Fine Adjustment” options, press “4” key on remote to ADD crossed sections to pattern and make effect visible between crossed sections.**

21. **To store adjustments press “7”, then “ACTION” key on remote, otherwise press “POWER” then “ACTION“ to exit adjustments without saving.**

22. **Once out of the “COARSE” register, “AUTO OFFSET” process begins by comparing red, green and blue color adjustment with the internal PTV convergence sensors.**

23. **For Remote functions, PRESS:**

PRESS BUTTON	TO
1(forward) or 3(back)	change viewed color
2	change pattern
4 (only FINE mode)	change crossed sections
5	overlap
* 7	save data
8	copy from
9	clear
POWER	exit
RECALL	display values
R-TUNE	cycle colors
TV/VIDEO	change mode
TV/VIDEO (3 secs)	switch convergence mode (FINE/ COARSE)

*****
When “7” is pressed and the data is saved, it will overwrite the factory default.

18.1. Coarse adjustment mode (COARS)

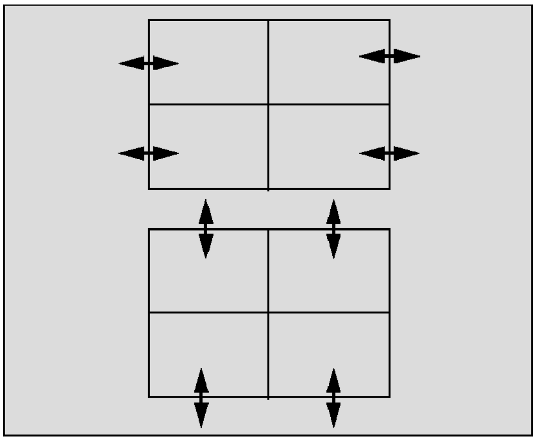
NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

NOTE:
It is strongly recommended to first read and understand the following section prior to make any adjustment. / Convergence adjustment must be performed for 480i_p (same for interlace & progressive), ZOOM 480i and 1080i.

Procedure:

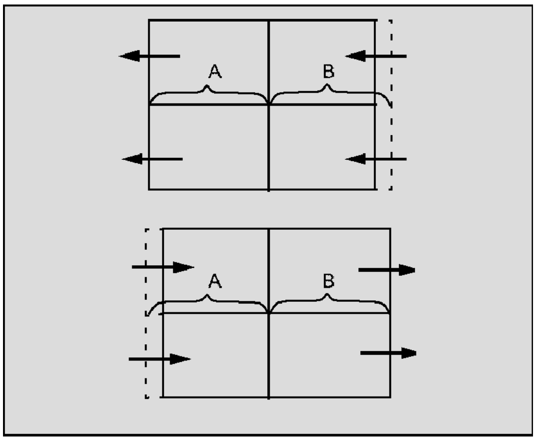
1. **Enter to “G-SIZE” mode:**
    - **Select “COARSE” DAC**
    - **Press ACTION on remote**
    - **TV/VIDEO (repeatedly)**
    - **R-TUNE (repeatedly)**
2. **Press “2” repeatedly and apply the pattern of border and cross.**
3. **Press “RECALL” key to display values**
4. **Adjust size so that the line of the border closes to the screen frame at top, bottom, left and right, by pressing CH up-down and VOL right-left**

“SIZE” mode adjustment



5. **Press “7” then “ACTION” key on remote to save changes.**
6. **Enter to linearity “G-LINEAR” mode by pressing “TV/VIDEO”.**
7. **Adjust linearity by pressing VOL right-left until A=B.**

“LINEAR” mode adjustment



8. Press “7” then “ACTION” key on remote to save changes.

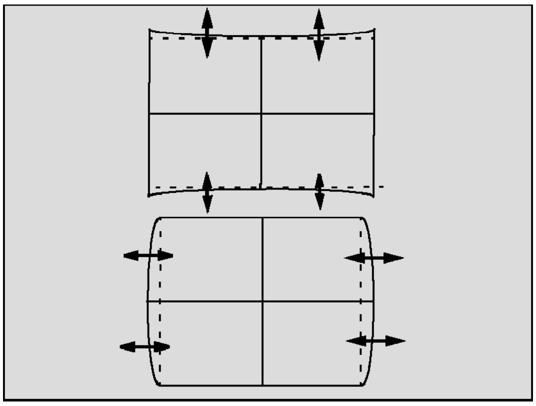
9. Enter to PIN “G-PIN” mode by pressing “TV/VIDEO”

10. Adjust V_PIN by pressing CH up-down (see figure)

11. Adjust H_PIN by pressing VOL right-left.

12. Press “7” then “ACTION” key on remote to save changes

“PIN” mode adjustment

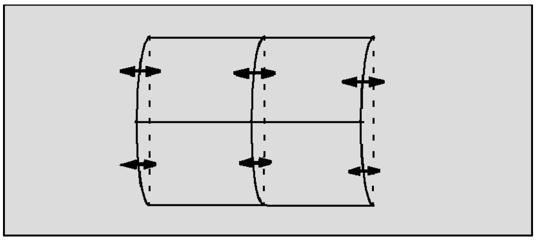


13. Press “7” then “ACTION” key on remote to save changes.

14. Adjust by pressing VOL right-left (see figure)

15. Press “7” then “ACTION” key on remote to save changes

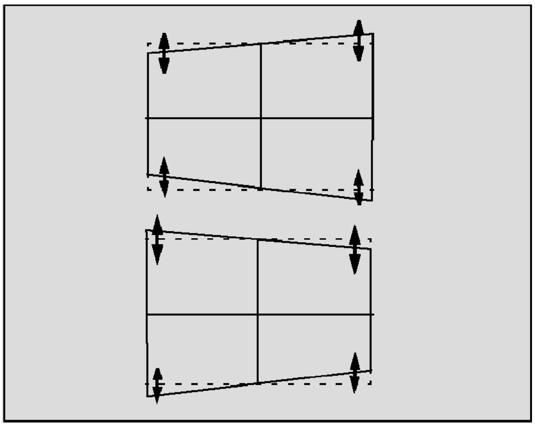
“CORNER” mode adjustment



16. Enter to KEY “G-KEY” mode by pressing TV/VIDEO.

17. **Adjust by pressing CH up-down (see figure)**
18. **Press “7” then “ACTION” key on remote to save changes**

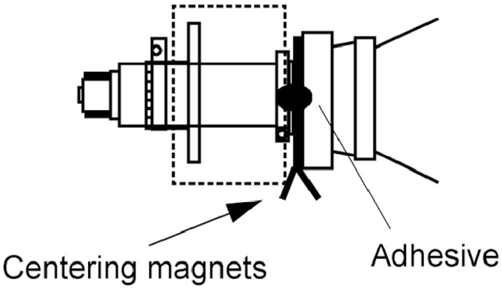
“KEY” mode adjustment



NOTE:
Confirm that pattern looks like a square and almost overlaps the screen frame, check that vertical and horizontal line center match with the marks on screen frame, if linearity is not good enough, repeat adjustments.

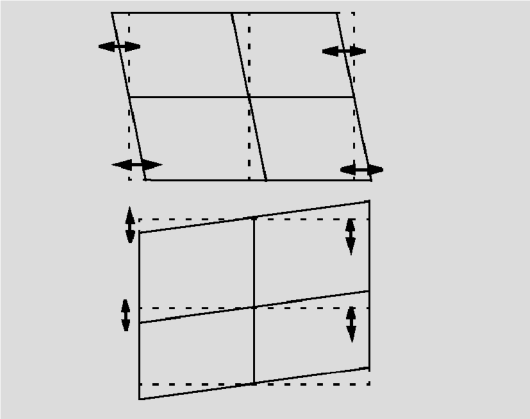
19. **Enter to “STATIC” mode by pressing TV/VIDEO.**
20. **Press “1” or “3” repeatedly until green and red only are shown.**
21. **Adjust “R-STATIC” so that the center of red overlaps with the center of green**

“STATIC” mode adjustment



22. **Enter to SKEW “R-SKEW” mode by pressing TV/VIDEO**
23. **Adjust “R-SKEW” so that the vertical and horizontal line of center overlaps with green (see figure)**
24. **Press “7” then “ACTION” key on remote to save changes.**

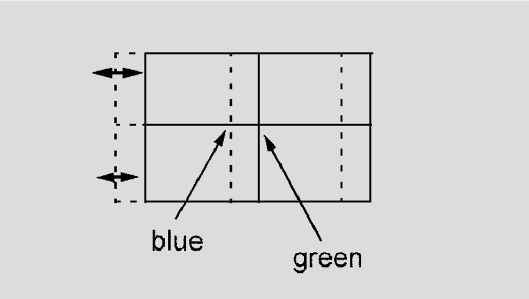
“SKEW” mode adjustment



NOTE:
Remember always save data following each adjustment by pressing “7” key on remote, then ACTION.

25. **Enter to LINEARITY “R-LINEAR” mode by pressing TV/VIDEO.**
26. **Adjust Horizontal linearity (see figure)**
27. **Enter to SIZE “R-SIZE” mode by pressing TV/VIDEO.**
28. **Adjust so that the line on the border closes to the screen frame at top, bottom, left and right (see figure).**
29. **Enter to PIN “R-PIN” mode by pressing TV/VIDEO**
30. **Adjust horizontally and vertically (see figure)**
31. **Enter to CORNER “R-CORNER” mode by pressing TV/VIDEO.**
32. **Adjust corners (see figure).**
33. **Enter to KEY “R-KEY” mode by pressing TV/VIDEO**
34. **Adjust KEY (see figure).**
35. **Display pattern of border and cross, then check that red overlaps green pattern, if it is not satisfactory, repeat from step 19.**
36. **Enter to STATIC “B-STATIC” mode.**
37. **Press “1 or 3” key repeatedly on remote until only green and blue pattern are displayed.**
38. **Adjust B-STATIC so that the center of blue overlaps with the center of green (see figure).**

“B-STATIC” mode adjustment



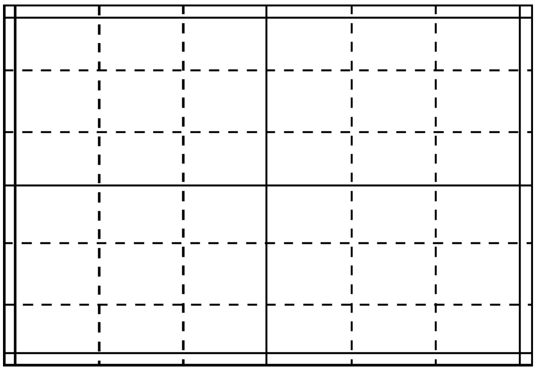
39. Perform all adjustments for blue (B-SKEW, B-LINEAR, B-SIZE, B-PIN, B-CORNER, B-KEY)
40. Display border and cross pattern and confirm that blue overlaps with green pattern, if it is not satisfactory, repeat for blue.
41. Press “1 or 3” key repeatedly on remote until green, red and blue (white), confirm that red and blue overlaps with green pattern.
42. Press “7” key on remote, then ACTION to save changes.
43. Press POWER then ACTION to exit adjustments or press TV/ VIDEO for at least 3 seconds to change to Fine Adjustment Mode.
44. After exiting COARS adjustment the “AUTO OFFSET” procedure begins. The receiver performs an horizontal and vertical sweeping offset reference with the new saved data for autoconvergence alignment feature (see “autoconvergenceadjustment” for more information.

18.2. Fine adjustment mode (FINE) (convergence)

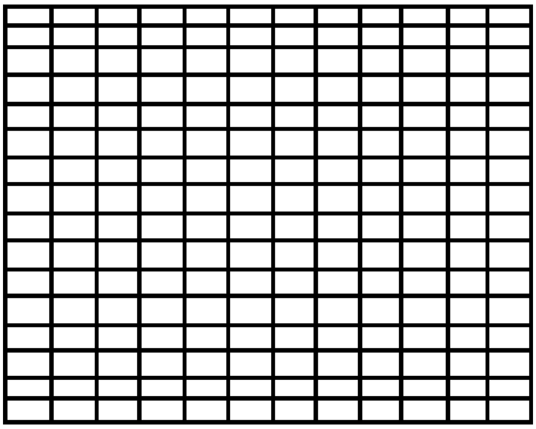
NOTE:
It is strongly recommended to first read and understand the following section prior to make any adjustment.

HELPFUL HINT:
The easiest way to adjust convergence is to start adjusting from the center of the screen to the borders in all the convergence adjustments.
Once in “FINE” convergence mode press “4” on remote control frequently to change crossed sections, this helps to check convergence more accurate in more sections of the picture. Please see the following figuresthat show the cycle, this does not have any effect on the positions of the cursor.

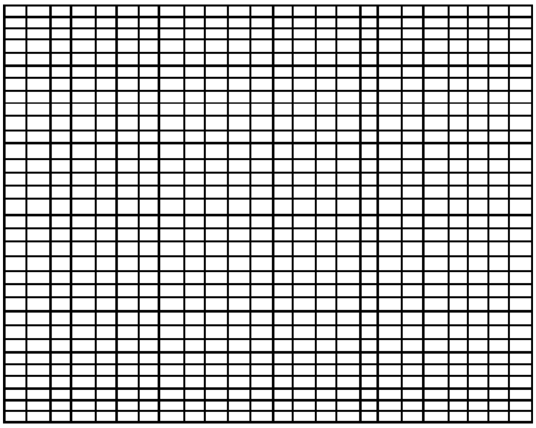
“FINE” convergence mode default Grid



“FINE” convergence mode after pressing “4” on remote



“FINE” convergence mode after pressing “4” on remote



PRESS BUTTON	TO
1(go) or 3(back)	change color view
2	change pattern
4 (only FINE mode)	change crossed sections
5	overlap
* 7	save data
8	copy from
9	clear
POWER	exit
RECALL	display values
R-TUNE	cycle colors
TV/VIDEO	change mode
TV/VIDEO (3 secs)	switch convergence mode (FINE/ COARSE)

*
When “7” is pressed and the data is saved, it will overwrite the factory default.

In “FINE ADJUSTMENT MODE” options, press “MUTE” key on remote to switch between “cursor” mode and “data” mode.

- **Cursor mode (cursor flashing): Allows cursor movement by pressing VOL right - left and CH up - down.**
- **Data mode (cursor fixed): Allows making adjustment by pressing VOL right - left and CH up - down.**

PROCEDURE:

1. To Enter to “G-EASY” mode (for green):

- **Select “FINE” DAC**
- **Press ACTION on remote**
- **Press TV/VIDEO (repeatedly) to select mode.**
- **Press R-TUNE (repeatedly) to select color**

2. Press “2” repeatedly and apply the pattern of crosshatch.

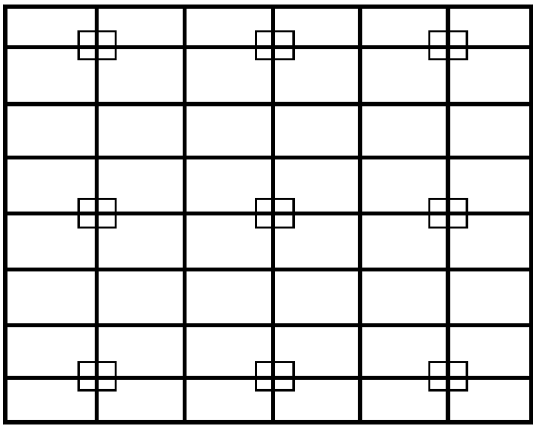
3. Press “4” frequently to change crossed sections, this helps to check convergence more accurate in more sections of the picture.

4. Press “1 or 3” repeatedly until the pattern becomes green.

5. Press RECALL to display values.

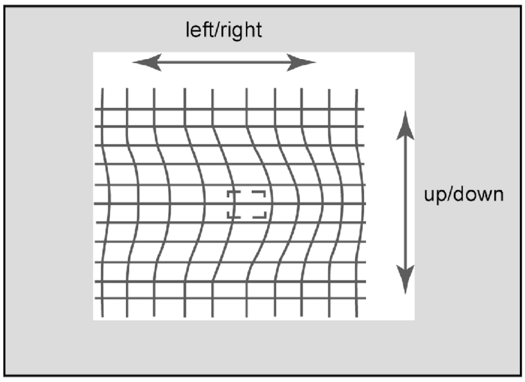
6. In “EASY” mode, the adjustment value changes by 4 steps
7. “EASY” mode allows to move lines horizontally and vertically from the center of cursor

“EASY” mode adjustment, possible locations for cursor



8. This mode affects a wide area around the cursor than other adjustment modes, See values on screen by pressing RECALL on remote
9. Begin adjustment from the center to the edge of the screen.
10. Adjust when the cursor is not flashing by pressing CH up/down and VOL right/left on the remote control, if the cursor is flashing press MUTE on remote.

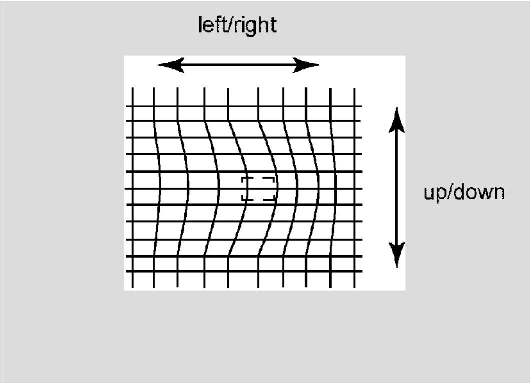
“EASY” mode adjustment



11. To move the cursor press MUTE on the remote (cursor flashes), then move the cursor to any of the positions for “EASY” mode
12. This adjustment may help to make rounded lines become straight lines.
13. Adjust to make lines as straight as possible.

14. Enter to POINT “G-POINT” (for green) mode by pressing TV/ VIDEO.
15. “POINT” mode allows to move line horizontally and vertically from the perimeter of cursor making rounded lines become straight
16. In “POINT” mode, the adjustment data changes by 2 steps, See values on screen by pressing RECALL on remote
17. When the cursor is located in the outer area of the border the cursor starts to flash from one side to other, the location is for the non-visible area and the most outer side of screen (inside the ovals area, see figure); This applies to “LINE”, “POINT” & “ORIGIN.POINT” modes.
18. Begin adjustment from the center to the edge of the screen

“POINT” & “ORIG. POINT” mode adjustment

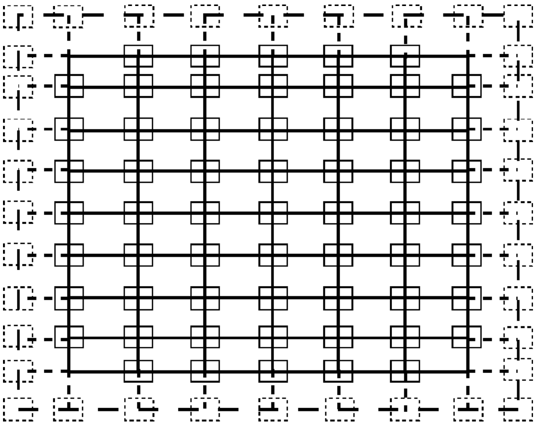


19. Adjust to make lines as much straight as possible
20. When slightly adjustment is needed, use “ORIG. POINT” mode.
21. To enter to “G-ORIG. POINT” (for green) mode press TV/VIDEO.
22. With “ORIG. POINT”, the adjustment data changes by 1 step, this allows more detail in the adjustment. Display values on screen by pressing RECALL on remote
23. Confirm that green adjustment is good enough, if adjustment is not satisfactory, repeat adjustments.
24. Enter to LINE “G-LINE” mode by pressing TV/VIDEO.
25. LINE mode allows to move each single line horizontally and vertically (see figure)

26. Begin adjustment from the center to the edge of the screen (see figure)

27. Adjust to make distribute lines

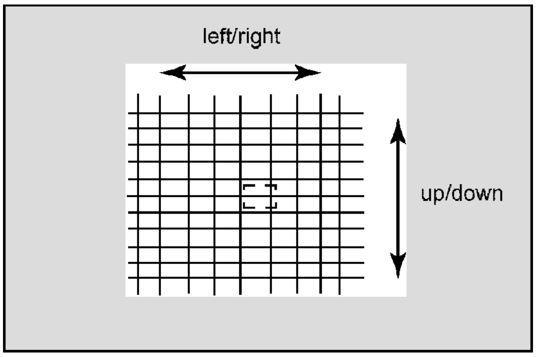
LINE, POINT, ORIG. POINT modes, possible locations for cursor



28. Then press "1 or 3" on the remote until red and green appears.

NOTE:
Since convergence adjustment will not allow to adjust every single cross section of the grid, it is very important to adjust, so that overall looks best, in "FINE" mode press "4" frequently on remote control tocycle crosshatch pattern to verify convergence.

"LINE" mode adjustment



29. Perform adjustments for red so that red overlaps green, do not move green.

30. Press "1 or 3" on the remote until yellow (red and green) and blue appears, do not move green or red.

31. Perform adjustments so that blue overlaps Yellow (red and green).

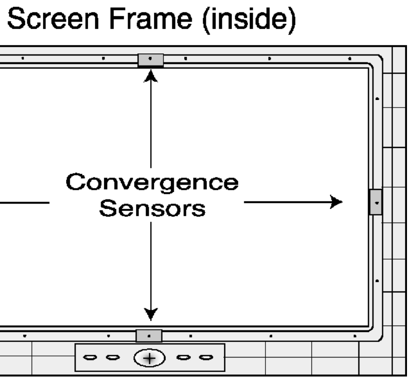
32. Press "1 or 3" key on remote to display red, green and blue (white).

33. At this point the crosshatch pattern should look white.
34. If the crosshatch pattern is not only white, repeat adjustment for that specific color (red or blue).
35. Once the crosshatch pattern looks only white, perform the adjustments for White only (“POINT”, “ORIG. POINT” & “LINE”), notice that each adjustment must be only for white (red, green,blue)
36. Adjust white for a good line distribution and make lines completely straight.
37. Press “7” key on remote, then ACTION to save changes.
38. Press POWER then ACTION to exit convergence adjustments (DACs menu appears).
39. After exiting FINE adjustment the “AUTO OFFSET” procedure begins. The receiver performs an horizontal and vertical sweeping offset reference with the new saved data for autoconvergence alignment feature (see “autoconvergenceadjustment” for more information.

18.3. Autoconvergence adjustment

The GN1P family has a special feature that performs an autoconvergence quick adjustment with a 4 point optical reference pattern. To perform this automatic adjustment the receiver must sweep 4 line reference pattern(2 horizontal and 2 vertical)for all 3 colors (red, green and blue). The receiver capture the light sweep alignment with 4 optical sensors inside the screen frame perimeter.

Sensor Location



In Service mode:
In case that autoconvergence adjustment does not give proper convergence alignment results repeat manual convergence adjustment procedure.

Autoconvergence Troubleshoot (ERROR display)

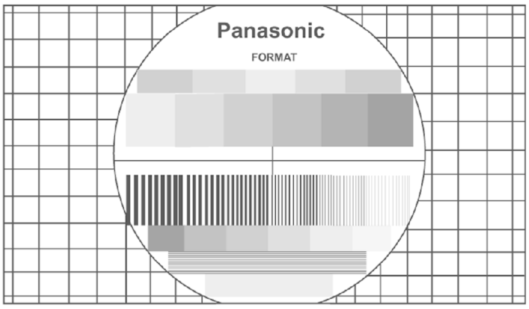
When autoconvergence feature is executed and the procedure doesn’t complete accordingly by displaying an error number on screen, check the possible causes in the following order:

1. **Make sure convergence and electrical adjustments are properly set.**
2. **Check all chassis connections.**
3. **Check that Autoconvergence patterns are centered and displayed correctly.**
4. **Check that K-board is properly connected.**
5. **Check that optical sensors (screen frame) are properly connected and working. Check the following error table for possible optical sensor malfunction or bad connection. In case of malfunction, replace optical sensor (CD-board).**

Error display	Description	Error display	Description
A0	Left sensor did not detect horizontal red.	A1	Left sensor did not detect vertical red.
A8	Top sensor did not detect horizontal red.	A9	Top sensor did not detect vertical red.
B0	Bottom sensor did not detect horizontal red.	B1	Bottom sensor did not detect vertical red.
B8	Right sensor did not detect horizontal red.	B9	Right sensor did not detect vertical red.
A2	Left sensor did not detect horizontal green.	A3	Left sensor did not detect vertical green.
AA	Top sensor did not detect horizontal green.	AB	Top sensor did not detect vertical green.
B2	Bottom sensor did not detect horizontal green.	B3	Bottom sensor did not detect vertical green.
BA	Right sensor did not detect horizontal green.	BB	Right sensor did not detect vertical green.
A4	Left sensor did not detect horizontal blue.	A5	Left sensor did not detect vertical blue.
AC	Top sensor did not detect horizontal blue.	AD	Top sensor did not detect vertical blue.
B4	Bottom sensor did not detect horizontal blue.	B5	Bottom sensor did not detect vertical blue.
BC	Right sensor did not detect horizontal blue.	BD	Right sensor did not detect vertical blue.

18.4. Horizontal and vertical size check

1. Apply a pattern that permits to check that horizontal and vertical proportion of the image is correct
2. Confirm that horizontal and vertical center of the picture is located in the center of the screen.
3. Check that the image is proportional horizontally and vertically, proportion is different on every aspect.



18.5. Convergence alignment template

The convergence alignment template is a grid approximately the size of the viewing screen used to ensure the proper size and shape of the alignment rasters. It is 6 blocks across by 6 blocks high. Apply a convergence alignment template to the viewingscreen of the PTV. Make sure the center lines are properly aligned. If a template is not available, one can be created by following the instructions below.Create a convergence alignment template by drawing a pattern, as in the figure, in the actualdimensions on transparent film or tracing paper. Start with the Horizontal and Vertical Center Axis and work outwards until the pattern is complete. Pay attention to the actual dimensions of the pattern.

Template dimensions:

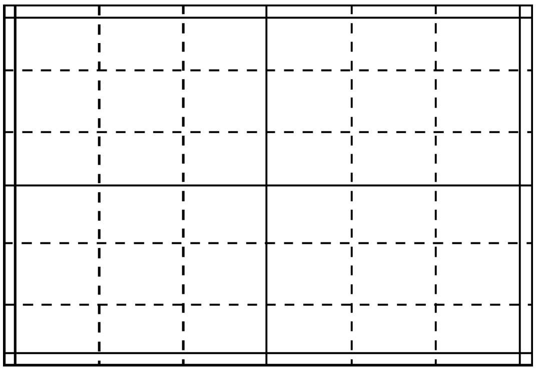
- 53”: 1173.3mm horizontal x 660mm vertical.

Single grid dimension:

HORIZONTAL	VERTICAL
189.22 mm	94.29 mm

NOTE:
A convergence alignment template, part number TXFQD01FSER is available through Matsushita/ Panasonic Services

Convergence template.



19. Reference of PDF links color

DESCRIPTION OF PDF LINK COLORS	
TYPE	**DESTINATION**
SCHEMATIC	
YELLOW ON IC	IC ON PCB
YELLOW ON CONNECTOR	CONNECTOR ON PCB
YELLOW ON SCHEMATIC	PCB
CYAN	WAVEFORM
GREEN ON SIDE	SCHEMATIC CONTINUED
GREEN ON CONNECTOR	CONNECTOR CONNECTION
BLUE ON IC	VOLTAGE
PCB	
BLUE ON IC	IC ON SCHEMATIC
BLUE ON CONNECTOR	CONNECTOR ON SCHEMATIC
BLUE ON PCB	SCHEMATIC
GREEN ON SIDE	PCB CONTINUED
BLOCK DIAGRAMS	
GREEN ON IC	IC ON SCHEMATIC
GREEN ON SIDE	BLOCK DIAGRAM CONTINUED

20. Conductor views

20.1. A-Board Printed Circuit (page 1 of 2)

20.2. A-Board Printed Circuit (page 2 of 2)

20.3. D-Board Printed Circuit (page 1 of 2)

20.4. D-Board Printed Circuit (page 2 of 2)

20.5. DC-Board Printed Circuit (Top & bottom view)

20.6. DG-Board Printed Circuit (bottom view)

20.7. DG-Board Printed Circuit (top view)

20.8. H-Board Printed Circuit

20.9. CD, G, K & R Printed Circuit Boards

20.10. LB-Board Printed Circuit

20.11. LG-Board Printed Circuit

20.12. LR-Board Printed Circuit

21. Block diagrams

21.1. Audio block diagram page (1 of 2)

21.2. Audio block diagram (page 2 of 2)

21.3. Video block diagram (page 1 of 2)

21.4. Video block diagram (page 2 of 2)

22. Schematic diagrams

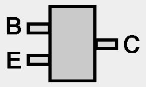
22.1. Schematic diagrams notes

Notes:

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

CHIP TRANSISTOR LEAD DESIGNATION



SCHEMATIC NOTES

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in µH.
4. Test point indicated by ⍑ ; Test point but no pin ⍑.
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⏚ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

VOLTAGE MEASUREMENTS

1. Voltage measurement:
    - AC input to the Receiver is 120V. NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
    - All Picture and Audio adjustments are set to Normalize.
      TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
      Volume - Min.
      TV/Video SW - TV position
      Audio Mode - Stereo
    - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
    - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter.
   Incorrect ground connection will result in erroneous readings.

CAUTION: ***Incorrect ground connection of the test equipment will result in erroneous readings.***

WAVEFORM MEASUREMENTS

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to “MIN”.
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

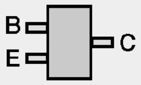
22.2. Notas de los diagramas esquemáticos

Notas

NOTA DE SEGURIDAD

LOS DIAGRAMAS ELÉCTRICOS INCLUYEN CARACTERÍSTICAS ESPECIALES MUY IMPORTANTES PARA LA PROTECCIÓN CONTRA RAYOS-X, QUEMADURAS Y DESCARGAS ELÉCTRICAS. CUANDO SE DE SERVICIO ES IMPORTANTE USAR PARA REEMPLAZO DE COMPONENTES CRITICOS, SOLO PARTES ESPECIFICADAS POR EL FABRICANTES. LOS COMPONENTES CRITICOS ESTAN SEÑALADOS EN LOS DIAGRAMAS POR EL SIMBOLO ⚠.

IDENTIFICACIÓN DE TERMINALES PARA TRANSISTORES EN *CHIP*



NOTAS DE LOS DIAGRAMAS

1. Las Resistencias son de Carbón de 1/4W, a menos que se indique otra característica.
2. Los Capacitores son de Cerámica para 50V, a menos que se indique otra característica.
3. El valor indicado de las Bobinas es la inductancia expresada en µH.
4. Los puntos de prueba en la terminal de algún componente son indicados por ⫯ Los puntos de prueba fuera de los componentes se indican con ⚲.
5. Los componentes señalados con el símbolo ⚠ son considerados componentes críticos y deben ser reemplazados sólo con las partes especificadas por el fabricante.
6. ▬ (**LINEA GRUESA**) indica las líneas de alimentación de los Voltajes B+.
7. Los diagramas eléctricos están sujetos a cambio sin previo aviso.
8. El símbolo ⏚ indica que es una conexión a **Tierra Caliente** y el símbolo ⫨ indica conexión a **Tierra Fría**.

NOTA: Los demas símbolos de componentes incluidos son usados con fines de diseño.

MEDICIÓN DE VOLTAJES

1. Medición de voltaje:
   - El voltaje de entrada al Receptor es de 120V de Corriente Alterna. Un generador de patrones con formato NTSC se conecta a la entrada de la antena. (Patrón de Barras de Colores con 100 IREs para el Blanco y 7.5 IREs para el Negro.)
   - Los ajustes de los Menus Picture y Audio se normalizan.
     En el Menú Set-Up, en la opción ANTENA, se selecciona el modo de CABLE.
     El nivel de Volumen se minimiza.
     De los modos TV y Video, seleccionar el modo TV.
     Seleccionar modo Estereo del Audio.
   - Las mediciones de los voltajes son nominales y pueden variar hasta 10% en componentes en funcionamiento. Las lecturas de los voltajes pueden variar por la potencia de la señal y el contenido de la imagen.
   - Las fuentes de voltajes son nominales.
2. El símbolo ⏚ indica el tipo de tierra que se utiliza en la conexión del medidor.

PRECAUCION: SI no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

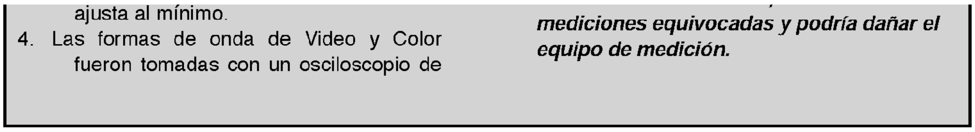
MEDICIÓN DE FORMAS DE ONDA

1. Un símbolo como ③ indica el punto para medir una señal. (La medición puede hacerse en el punto con mayor accesibilidad, siempre que sea común al indicado.)
2. Se midieron utilizando un generador con formato NTSC conectado a la terminal de la antena. (Patrón de 8 Barras de Colores EAI, formato NTSC de 100 IREs para el Blanco y 7.5 IREs para el Negro.)
3. Los ajustes de usuario de los Menus PICTURE y AUDIO se normalizaron. Posteriormente el nivel de volumen se ajusta al mínimo

banda alta y con un punta de prueba de baja capacitancia (10 a 1). La forma y amplitud de las ondas puede variar según el tipo de osciloscopio que se utilice y sus características.

5. El símbolo de tierra ⏚ que aparece junto al número de la forma de onda, indica que se utiliza conexión a **Tierra Caliente** en el extremo negativo de la punta de prueba.

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán


ajusta al mínimo.

4. Las formas de onda de Video y Color fueron tomadas con un osciloscopio de

mediciones equivocadas y podría dañar el equipo de medición.

22.3. A-Board schematic 1 of 3

22.4. A-Board schematic 2 of 3

22.5. A-Board schematic 3 of 3

22.6. D-Board schematic 1 of 5

22.7. D-Board schematic 2 of 5

22.8. D-Board schematic 3 of 5

22.9. D-Board schematic 4 of 5

22.10. DC-Board schematic 1 of 2

22.11. DC-Board schematic 2 of 2

22.12. DG-Board schematic 1 of 11

22.13. DG-Board schematic 2 of 11

22.14. DG-Board schematic 3 of 11

22.15. DG-Board schematic 4 of 11

22.16. DG-Board schematic 5 of 11

22.17. DG-Board schematic 6 of 11

22.18. DG-Board schematic 7 of 11

22.19. DG-Board schematic 8 of 11

22.20. DG-Board schematic 9 of 11

22.21. DG-Board schematic 10 of 11

22.22. DG-Board schematic 11 of 11

22.23. CD,G, K, & R Boards schematics

22.24. H-Board schematic

22.25. LB-Board schematic 1 of 2

22.26. LB-Board schematic 2 of 2

22.27. LG-Board schematic 1 of 2

22.28. LG-Board schematic 2 of 2

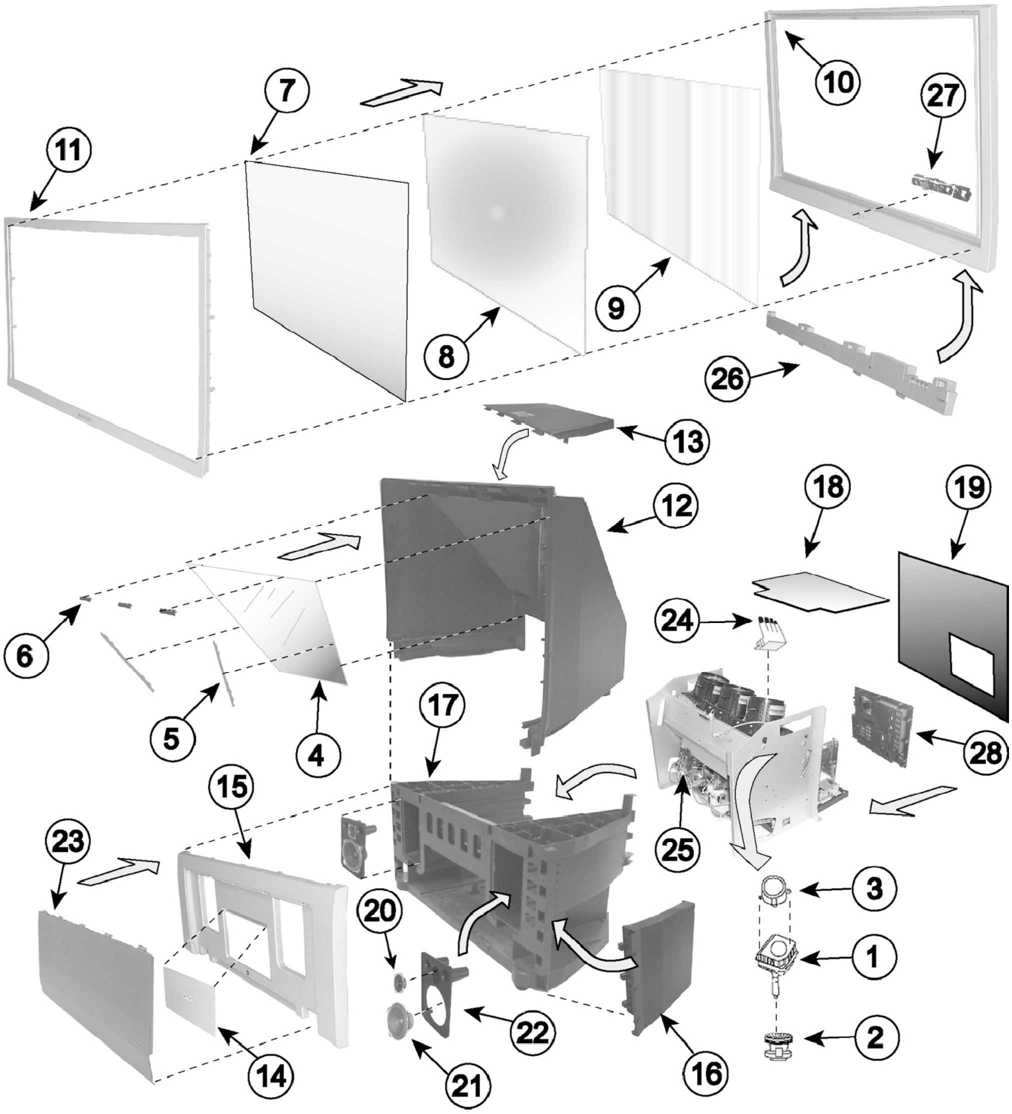
22.29. LR-Board schematic 1 of 2

22.30. LR-Board schematic 2 of 2

22.31. Voltages

22.32. Waveforms

23. Parts location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24. Parts list

24.1. Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor
Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide Metal Film	J : ± 5% K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor
Example :
ECKF1H103ZF **C** 0.01μF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester Polypropylene	F : ± 1pF G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

24.2. Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
CAPACITORS			
C001	ECA1HM4R7B	CAP E 4.7UF-50V	
C003	ECJ2VC1H101J	CAP C 100PF-J-50V	
C004	ECJ2VF1E224Z	CAP C .22UF-Z-25V	
C006	EEUFC1A471B	CAP E 470UF-16V	
C007	ECA1HM4R7B	CAP E 4.7UF-50V	
C009	ECJ2VC1H101J	CAP C 100PF-J-50V	
C010	ECJ2VF1E224Z	CAP C .22UF-Z-25V	
C012	EEUFC1A471B	CAP E 470UF-10V	
C051	EEUFC1E470B	CAP E 47UF-25V	
C052	TACCX103T50V	CAP C .01UF-Z-50V	
C302	ECCR1H221JC5	CAP C 220PF-J-50V	
C303	ECQM2103KZ3	CAP P .01UF-K-200V	
C304	ECQE2104KFW	CAP P .10UF-K-200V	
C305	ECA1HM470B	CAP E 47UF-50V	
C306	ECA2EM100E	CAP E 10UF-250V	
C307	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C308	ECA1HM220B	CAP E 22UF-50V	
C309	ECA2EM100B	CAP E 10UF-250V	
C312	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C313	ECKR2H102KB5	CAP C 1000PF-K-500V	
C315	ECKR1H103ZF5	CAP C .01UF-Z-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C331	ECA1HM470B	CAP E 47UF-50V	
C332	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C333	ECA1HM470B	CAP E 47UF-50V	
C334	ECA2EM470B	CAP E 47UF-250V	
C335	ECCR1H221JC5	CAP C 220PF-J-50V	
C336	ECA1HM470B	CAP E 47UF-50V	
C337	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C339	ECQE2104KFW	CAP P .10UF-K-200V	
C340	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C341	ECA2EM100B	CAP E 10UF-250V	
C345	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C346	ECKR2H102KB5	CAP C 1000PF-K-500V	
C362	ECCR1H221JC5	CAP C 220PF-J-50V	
C364	ECQE2104KFW	CAP P .10UF-K-200V	
C365	ECA2EM100B	CAP E 10UF-250V	
C366	ECA1HM470B	CAP E 47UF-50V	
C367	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C368	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C372	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C373	ECKR2H102KB5	CAP C 1000PF-K-500V	
C374	ECA1CM101B	CAP E 100UF-16V	
C405	ECA1EHG102E	CAP E 1 000UF-25V	
C406	ECA1EHG102E	CAP E 1 000UF-25V	
C407	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C408	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C411	ECJ2VB1H822K	CAP C .0082UF-K-50V	
C412	ECQB1224KF3	CAP P .22UF-K-100V	
C413	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C414	ECJ2VB1H272K	CAP C .0027UF-K-50V	
C417	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C418	ECJ2VF1H223Z	CAP C .022UF-Z-50V	
C421	ECEA1CN220UB	CAP E 22UF-16V	
C458	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C461	ECA1HHG221B	CAP E 220UF-50V	
C501	ECA1EM101B	CAP E 100UF-25V	
C502	ECQV1H105JL3	CAP P 1.0UF-J-50V	
C503	ECKR2H102KB5	CAP C 1000PF-K-500V	
C509	ECWF2474JSR	CAP P .47UF-J-200V	
C510	ECJ2VC1H221J	CAP C 220PF-J-50V	
C511	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C512	ECWH20202JVY	CAP P 2000PF-J-2KV	⚠
C513	ECQF4103JZH	CAP P .01UF-J-400V	⚠
C514	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C518	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C519	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C520	ECQB1H103JF3	CAP P .01UF-J-50V	⚠
C524	ECQB1224JF3	CAP P .22UF-J-100V	
C525	ECEA1HN220UB	CAP E 22UF-50V	
C526	ECA2EM101E	CAP E 100UF-250V	
C527	ECKR2H102KB5	CAP C 1000PF-K-500V	
C528	ECA1HM470B	CAP E 47UF-50V	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
C531	ECA160V33UE	CAP E 33UF-160V	
C533	ECKR2H101KB5	CAP C 100UF-K-500V	
C535	ECA1EM471E	CAP E 470UF-25V	
C601	EEUFC1C331B	CAP E 330UF-16V	
C602	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C653	ECA1HM010E	CAP E 1UF-50V	
C654	ECA1HM010E	CAP E 1UF-50V	
C701	ECA1CM101B	CAP E 100UF-16V	
C702	ECKW3D271KBP	CAP C 270PF-K-2KV	
C703	ECQM2104KZW	CAP P .1UF-K-200V	
C704	ECKR2H391KB5	CAP C 390PF-K-500V	
C707	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C708	ECQE1685KFB	CAP P 6.8UF-K-100V	
C801	ECQU2A474MLA	CAP. P. 47UF-M-250VAC	⚠
C802	ECQU2A474MLA	CAP. P. 47UF-M-250VAC	⚠
C803	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C804	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C805	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C806	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C807	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C808	ECA1EM101B	CAP E 100UF-25V	
C809	ECJ2VB1E223K	CAP C .022UF-K-25V	
C810	EETED2D102C	CAP E 1000PF-200V	⚠
C812	ECA1EHG471B	CAP E 470UF-25V	
C814	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C815	ECQB1H152JF3	CAP P 1500PF-J-50V	
C817	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C819	ECQB1H102JF3	CAP P 1000PF-J-50V	
C820	ECQV1H334JL3	CAP P .33UF-J-50V	
C821	ECQB1H272KF3	CAP P 2700PF-K-50V	
C822	ECA1HM220B	CAP E 22UF-50V	
C823	ECJ2VC1H151J	CAP C 150PF-J-50V	
C824	EEUFC1V151B	CAP E 150UF-35V	
C825	ECKCNA102MBB	CAP C .001UF-M-125V	⚠
C826	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C830	EETHC2C471B	CAP E 470PF-160V	⚠
C831	ECKW3D821KBP	CAP C 820PF-K-2KV	
C832	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C834	EEUFC1V222E	CAP E 2200UF-35V	
C836	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C837	ECA1EM472E	CAP E 4700UF-25V	
C839	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C841	ECA1EM472E	CAP E 4700UF-25V	
C842	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C843	ECA1VM222E	CAP E 2200UF-35V	
C844	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C845	ECA1VM222E	CAP E 2200UF-35V	
C846	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C848	ECA1CM101B	CAP E 100UF-16V	
C849	ECKR1H223ZF5	CAP C .022UF-Z-50V	
C851	ECQV1H104JL3	CAP P .10UF-J-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C852	ECA1EM101B	CAP E 100UF-25V	
C853	ECJ2YF1E474Z	CAP C .47UF-Z-25V	
C854	ECA1CM101B	CAP E 100UF-16V	
C855	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C856	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C860	ECJ2VB1H103K	CAP C .01UF-K-50V	
C861	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C862	ECJ2VB1H103K	CAP C .01UF-K-50V	
C863	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C864	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C865	ECA1CM221B	CAP E 10UF-16V	
C866	ECA0JM221B	CAP E 220UF-6.3V	
C867	ECA1CM221B	CAP E 10UF-16V	
C868	EEUFC1C471B	CAP E 470UF-16V	
C869	EEUFC1A471B	CAP E 470UF-10V	
C870	EEUFC1A471B	CAP E 470UF-10V	
C874	ECA1VM221B	CAP E 220UF-35V	
C875	ECA1VM221B	CAP E 220UF-35V	
C876	ECA1VM221B	CAP E 220UF-35V	
C877	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C878	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C879	ECA0JM221B	CAP E 220UF-6.3V	
C880	ECA0JM221B	CAP E 220UF-6.3V	
C885	EEUFC1A471B	CAP E 470UF-10V	
C886	EEUFC1A471B	CAP E 470UF-10V	
C889	ECA1VM221B	CAP E 220UF-35V	
C890	ECA1VM221B	CAP E 220UF-35V	
C902	ECQM2103KZ3	CAP P .01UF-K-200V	
C903	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C904	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C906	ECQM2103KZ3	CAP P .01UF-K-200V	
C907	ECA2CM100E	CAP E 10UF-160V	
C908	ECA1CM101B	CAP E 100UF-16V	
C909	ECA1CM101B	CAP E 100UF-16V	
C910	ECA2CM100E	CAP E 10UF-160V	
C911	ECQE2104KFW	CAP P .10UF-K-200V	
C912	ECA1HM220B	CAP E 22UF-50V	
C913	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C916	ECQE2104KFW	CAP P .10UF-K-200V	
C939	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C940	ECQM2103KZ3	CAP P .01UF-K-200V	
C941	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C942	ECQM2103KZ3	CAP P .01UF-K-200V	
C943	ECA2CM100E	CAP E 10UF-160V	
C944	ECA1CM101B	CAP E 100UF-16V	
C945	ECA1CM101B	CAP E 100UF-16V	
C947	ECA2CM100E	CAP E 10UF-160V	
C948	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C949	ECQE2104KFW	CAP P .10UF-K-200V	
C962	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C963	ECQM2103KZ3	CAP P .01UF-K-200V	
C964	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C965	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C966	ECQM2103KZ3	CAP P .01UF-K-200V	

Ref. No.	Part No.	Part Name & Description	Remarks
C967	ECA2CM100E	CAP E 10UF-160V	
C968	ECA1CM101B	CAP E 100UF-16V	
C969	ECA1CM101B	CAP E 100UF-16V	
C970	ECA2CM100E	CAP E 10UF-160V	
C971	ECQE2104KFW	CAP P .10UF-K-200V	
C972	ECA1HM220B	CAP E 22UF-50V	
C1303	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1304	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C1305	ECJ2VB1C104K	CAP C .1UF-K-16V	
C1306	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1307	ECA1CM101B	CAP E 100UF-16V	
C1502	ECQE6104KFB	CAP P 100UF-K-100V	
C1503	ECQE6104KFB	CAP P 100UF-K-100V	
C1504	ECJ2FB1H104K	CAP C .1UF-K-50V	
C1505	ECA1CM101B	CAP E 100UF-16V	
C1506	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1508	ECA1CM101B	CAP E 100UF-16V	
C1509	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C1510	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1511	ECJ2VC1H471J	CAP C 470PF-J-50V	
C1513	ECEA1EN101UB	CAP E 100UF-25V	
C1514	ECA1CM101B	CAP E 100UF-16V	
C2201	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2202	ECA1HM100B	CAP E 10UF-50V	
C2203	ECA1HMR47B	CAP E .47UF-50V	
C2204	ECQB1H473JF3	CAP P .047UF-J-50V	
C2205	ECSF1CE335VB	CAP E 33MF-16V	
C2206	ECQB1H223JF3	CAP P .022UF-J-50V	
C2207	ECA1HM010B	CAP E 1UF-50V	
C2208	ECSF1CE106VB	CAP E 10UF-16V	
C2209	ECA1HM4R7B	CAP E 4.7UF-50V	
C2210	ECA1HM2R2B	CAP E 2.2UF-50V	
C2211	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2212	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2214	ECA1CM101B	CAP E 100UF-16V	
C2215	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2216	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2303	ECA50YT1R5KB	CAP E 1.5UF-50V	
C2306	ECA50YT1R5KB	CAP E 2.2UF-50V	
C2310	ECQB1H224JF3	CAP P .22UF-J-50V	
C2314	F1J1C225A083	CAP C 2.2UF-Z-16V	
C2317	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2319	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2322	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2323	ECQB1H224JF3	CAP P .22UF-J-50V	
C2327	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2329	ECJ2VC1H270J	CAP C 27PF-J-50V	
C2331	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2334	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2335	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2337	ECJ2VB1H331K	CAP C 330PF-K-50V	
C2338	ECJ2VB1H682K	CAP C .0068UF-K-50V	
C2340	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2342	ECJ2VB1H331K	CAP C 330PF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C2344	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2346	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2348	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2349	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2352	ECJ2VB1H682K	CAP C .0068UF-K-50V	
C2353	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2356	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2359	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2361	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2363	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2365	EEUFC1E222E	CAP E 2200UF-25V	
C2368	EEUFC1E222E	CAP E 2200UF-25V	
C2369	ECEA1CN100UB	CAP E 10UF-16V	
C2370	ECEA1CN100UB	CAP E 10UF-16V	
C2371	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C2372	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C2373	ECA1HM100B	CAP E 10UF-50V	
C2374	ECA1EM101B	CAP E 100UF-25V	
C2375	ECA1HM100B	CAP E 10UF-50V	
C2376	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2377	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2378	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2379	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2381	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2382	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2394	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2398	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2403	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2404	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2421	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2426	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2434	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2451	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2452	ECJ2VB1H332K	CAP C .0033UF-K-50V	
C2453	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2454	ECJ2VB1H222K	CAP C .0022UF-K-50V	
C2455	ECJ2VB1C224K	CAP C .22UF-K-16V	
C2456	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2457	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2458	ECA1HM4R7B	CAP E 4.7UF-50V	
C2459	ECA1HM4R7B	CAP E 4.7UF-50V	
C2460	ECJ2VB1H103K	CAP C .01UF-K-50V	
C2461	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2462	ECJ2VB1H332K	CAP C .0033UF-K-50V	
C2463	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2464	ECJ2VB1H222K	CAP C .0022UF-K-50V	
C2465	ECJ2VB1C224K	CAP C .22UF-K-16V	
C2466	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2467	ECA1HM4R7B	CAP E 4.7UF-50V	
C2468	ECA1HM4R7B	CAP E 4.7UF-50V	
C2469	ECA1HM4R7B	CAP E 4.7UF-50V	
C2470	ECA1CM101B	CAP E 100UF-16V	
C3201	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3202	ECJ2VB1H152K	CAP C .0015UF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3203	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3331	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3332	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3333	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3334	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3335	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3336	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3337	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3338	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3339	ECJ2VB1H103K	CAP C .01UF-K-50V	
C3340	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3341	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3342	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3343	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3344	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3345	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3346	ECJ2VB1H103K	CAP C .01UF-K-50V	
C3347	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3348	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3349	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3350	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3351	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3352	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3353	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3354	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3355	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3357	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3358	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3359	ECA1EM471E	CAP E 470UF-25V	
C3360	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3361	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3362	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3363	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3364	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3365	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3366	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3367	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3368	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3369	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C7001	ECJ3YF1E225Z	CAP C 22MF-Z-25V	
C7002	ECJ3YF1E225Z	CAP C 22MF-Z-25V	
C7004	ECA1EHG221B	CAP E 220UF-25V	
C7006	ECA1EHG221B	CAP E 220UF-25V	
C7015	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7016	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7017	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7018	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7032	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7033	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7034	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7035	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7050	ECA1VM470B	CAP E 47UF-35V	
C7060	ECA1CHG101B	CAP E 100UF-16V	
C7061	ECA1CHG101B	CAP E 100UF-16V	

Ref. No.	Part No.	Part Name & Description	Remarks
C7065	ECA1VM470B	CAP E 47UF-35V	
DIODES			
D001	MAZ31500ML	DIODE ZENER	
D002	MAZ31500ML	DIODE ZENER	
D003	MAZ31500ML	DIODE ZENER	
D004	MAZ31500ML	DIODE ZENER	
D081	LN21RCPHL	DIODE	
D082	MAZ40560MF	DIODE ZENER	
D083	MAZ40560MF	DIODE ZENER	
D301	MA2C16700E	DIODE	
D302	MAZ40680LF	DIODE ZENER	
D303	TVSRM1V1	DIODE	
D304	B0HALP000002	DIODE FAST RECOVERY	
D306	MA2C165001VT	DIODE	
D307	MA2C165001VT	DIODE	
D312	MA2C18800E	DIODE	
D313	MA2C18800E	DIODE	
D314	MA2C18800E	DIODE	
D315	MA2C18800E	DIODE	
D331	B0HALP000002	DIODE FAST RECOVERY	
D331	MA2C165001VT	DIODE	
D334	MA2C165001VT	DIODE	
D335	MA2C165001VT	DIODE	
D339	MA2C18800E	DIODE	
D340	MA2C18800E	DIODE	
D341	MA2C18800E	DIODE	
D342	MA2C18800E	DIODE	
D361	B0HALP000002	DIODE FAST RECOVERY	
D361	B0HALP000002	DIODE	
D363	MA2C165001VT	DIODE	
D364	MA2C165001VT	DIODE	
D369	MA2C18800E	DIODE	
D370	MA2C18800E	DIODE	
D371	MA2C18800E	DIODE	
D372	MA2C18800E	DIODE	
D407	MA3X152K0L	DIODE	
D409	MA3X152K0L	DIODE	
D410	MA3X152K0L	DIODE	
D411	MA3X152K0L	DIODE	
D451	B0EAKC000003	DIODE RECTIFIER	
D452	B0EAKC000003	DIODE RECTIFIER	
D453	B0EAKC000003	DIODE RECTIFIER	
D454	B0EAKC000003	DIODE RECTIFIER	
D455	B0EAKC000003	DIODE RECTIFIER	
D456	B0EAKC000003	DIODE RECTIFIER	
D458	B0EAKL000008	DIODE RECTIFIER	
D465	MAZ40390MF	DIODE ZENER	
D466	MA3X152K0L	DIODE	
D501	B0HALP000002	DIODE FAST RECOVERY	
D502	MAZ31500ML	DIODE ZENER	
D503	B0HBRV000001	DIODE	
D504	MAZ42700MF	DIODE ZENER	
D509	MA3X152K0L	DIODE	
D510	MAZ30820LL	DIODE ZENER	

Ref. No.	Part No.	Part Name & Description	Remarks
D511	**B0HAHP000014**	**DIODE**	
D512	**B0HALP000002**	**DIODE FAST RECOVERY**	⚠
D513	**MA2C165001VT**	**DIODE**	
D0514	**MAZ30300LL**	**DIODE ZENER**	
D515	**B0HALP000002**	**DIODE FAST RECOVERY**	
D516	**EU2YXV0**	**DIODE**	
D519	**AU02ZV0**	**DIODE**	
D520	**MA3X152K0L**	**DIODE**	
D634	**MA2C165001VT**	**DIODE**	
D650	**MAZ41100MF**	**DIODE ZENER**	
D651	**MAZ41100MF**	**DIODE ZENER**	
D656	**MAZ41100MF**	**DIODE ZENER**	
D657	**MAZ41100MF**	**DIODE ZENER**	
D659	**MAZ41100MF**	**DIODE ZENER**	
D660	**MAZ41100MF**	**DIODE ZENER**	
D662	**MAZ41100MF**	**DIODE ZENER**	
D663	**MAZ41100MF**	**DIODE ZENER**	
D702	**B0HALP000002**	**DIODE FAST RECOVERY**	
D801	**D3SB80-4101**	**DIODE**	⚠
D802	**D4EAB3610002**	**DIODE**	⚠
D804	**B0EBKM000016**	**DIODE**	
D815	**MA2C165001VT**	**DIODE**	
D816	**MA2C70000F**	**DIODE**	
D817	**AU01ZV0**	**DIODE**	
D818	**MAZ32700LL**	**DIODE ZENER**	
D819	**B0BA01000046**	**DIODE ZENER**	⚠
D822	**B0AAGM000006**	**DIODE SWITCHING**	
D825	**SF5L60U-4115**	**GERMANIUM DIODE**	⚠
D827	**SF5LC30-4115**	**GERMANIUM DIODE**	
D828	**SF5LC30-4115**	**GERMANIUM DIODE**	
D829	**SF5LC30-4115**	**GERMANIUM DIODE**	
D830	**B0HAPM000012**	**DIODE**	
D831	**B0HAPM000012**	**DIODE**	
D835	**B0JAME000052**	**DIODE**	
D837	**MA3X152K0L**	**DIODE**	
D870	**MA2C165001VT**	**DIODE**	
D872	**MA2062-BTP**	**DIODE**	
D873	**MAZ31500ML**	**DIODE ZENER**	
D874	**MA2120-ATP**	**DIODE**	
D875	**MA2062-BTP**	**DIODE**	
D880	**B0JCME000025**	**DIODE**	
D881	**B0JCME000025**	**DIODE**	
D882	**B0JCME000025**	**DIODE**	
D884	**MA2062-BTP**	**DIODE**	
D885	**MA2062-BTP**	**DIODE**	
D886	**MA2C165001VT**	**DIODE**	
D887	**B0JCME000025**	**DIODE**	
D888	**B0JCME000025**	**DIODE**	
D891	**MAZ30330LL**	**DIODE ZENER**	
D902	**MA2C18800E**	**DIODE**	
D933	**MA2C18800E**	**DIODE**	
D953	**B0ZAZ0000047**	**DIODE**	

Ref. No.	Part No.	Part Name & Description	Remarks
D962	**MA2C18800E**	**DIODE**	
D973	**B0ZAZ0000047**	**DIODE**	
D983	**B0ZAZ0000047**	**DIODE**	
D1502	**B0HACW000001**	**DIODE**	
D1503	**MAZ30300LL**	**DIODE ZENER**	⚠
D1504	**B0HACW000001**	**DIODE**	
D1505	**MA2C0290BF**	**DIODE**	
D1506	**MAZ30510ML**	**DIODE**	⚠
D1507	**MAZ30300LL**	**DIODE ZENER**	
D1510	**MAZ30300LL**	**DIODE ZENER**	
D1599	**MA3X152K0L**	**DIODE**	
D2302	**MA3X152K0L**	**DIODE**	
D2306	**MA3X152K0L**	**DIODE**	
D2307	**MA3X152K0L**	**DIODE**	
D2330	**MA3X152K0L**	**DIODE**	
D2331	**MA3X152K0L**	**DIODE**	
D2334	**MA2C165001VT**	**DIODE**	
D3301	**MAZ31100ML**	**DIODE ZENER**	
D3302	**MAZ31100ML**	**DIODE ZENER**	
D3304	**MAZ31100ML**	**DIODE ZENER**	
D3306	**MAZ31100ML**	**DIODE ZENER**	
D3307	**MAZ31100ML**	**DIODE ZENER**	
D3308	**MAZ31100ML**	**DIODE ZENER**	
D3309	**MAZ31100ML**	**DIODE ZENER**	
D3310	**MAZ31100ML**	**DIODE ZENER**	
D3312	**MAZ31100ML**	**DIODE ZENER**	
D3314	**MAZ31100ML**	**DIODE ZENER**	
D3316	**MAZ31100ML**	**DIODE ZENER**	
D3317	**MAZ31100ML**	**DIODE ZENER**	
D3318	**MAZ31100ML**	**DIODE ZENER**	
D3319	**MAZ31100ML**	**DIODE ZENER**	
D3320	**MAZ31100ML**	**DIODE ZENER**	
D3321	**MAZ31100ML**	**DIODE ZENER**	
D3322	**MAZ31100ML**	**DIODE ZENER**	
D3323	**MAZ31100ML**	**DIODE ZENER**	
D3324	**MAZ31100ML**	**DIODE ZENER**	
D3325	**MAZ31100ML**	**DIODE ZENER**	
D3326	**MAZ31100ML**	**DIODE ZENER**	
D3328	**MAZ31100ML**	**DIODE ZENER**	
D3329	**MAZ31100ML**	**DIODE ZENER**	
D3330	**MAZ31100ML**	**DIODE ZENER**	
D3332	**CVS20A120MTA**	**DIODE**	
D3334	**CVS20A120MTA**	**DIODE**	
D3335	**MAZ31100ML**	**DIODE ZENER**	
D3336	**MAZ31100ML**	**DIODE ZENER**	
D3339	**MAZ31100ML**	**DIODE ZENER**	
D3340	**MAZ31100ML**	**DIODE ZENER**	
D7060	**MA3X152K0L**	**DIODE**	
FUSES			
F801	**K5D632AD0002**	**FUSE 6.3A/125V**	⚠
INTEGRATED CIRCUITS			
IC451	**C1AA00000521**	**VERTICAL OUTPUT**	
IC701	**C0BBBA000043**	**EW, HHS ADJ. OP-AMP**	

Ref. No.	Part No.	Part Name & Description	Remarks
IC801	AN8029	POWER SUPPLY	⚠
IC802	C0EAS0000025	MAIN REGULATOR	⚠
IC805	AN78M12LB	12V REGULATOR	
IC811	0N3171RLF	OPTO COUPLER	⚠
IC872	C0DACMG00001	9V REGULATOR	
IC874	SI-8050J	5V REGULATOR	
IC875	C0DACMG00001	3.3V REGULATOR	
IC876	C0DACMG00001	2.5V REGULATOR	
IC877	C0DACMG00001	1.8V REGULATOR	
IC880	AN78M12LB	12V REGULATOR	
IC1302	TVR2AJ180S	MAIN EEPROM	
IC1303	TVR2AJ199S	CONVERGENCE EEPROM	
IC1501	C0ABBA000073	EHT ADJ. OP-AMP	
IC2201	AN5849S-E1V	MTS AUDIO	
IC2301	C1AA00000645	AUDIO AMPLIFIER	
IC2303	C0ABBA000073	VAO OP-AMP	
IC2401	NJW1164MPTE1	BBE VIVA PROCESSOR	
IC7001	C5AA00000196	CONVERGENCE AMPLIFIER	
IC7002	C5AA00000196	CONVERGENCE AMPLIFIER	
COILS			
L001	ELELN330JA	COIL 33UH	
L002	ELELN330JA	COIL 33UH	
L301	ELEBD101KA	COIL 100UH	
L302	ELESN100JA	COIL PEAKING 10UH	
L303	ELESN6R8JA	COIL PEAKING 6.8UH	
L304	ELESN4R7JA	RADIAL INDUCTOR	
L307	ELEBD101KA	COIL 100UH	
L331	ELESN100JA	COIL PEAKING 10UH	
L332	ELESN6R8JA	COIL PEAKING 6.8UH	
L333	G0C560KA0021	COIL PEAKING 56UH	
L334	ELESN4R7KA	COIL PEAKING 4.7UH	
L335	ELEBD101KA	COIL 100UH	
L337	G0C560KA0021	COIL PEAKING 56UH	
L341	ELEBD101KA	COIL 100UH	
L361	ELEBD101KA	COIL 100UH	
L362	ELESN100JA	COIL PEAKING 10UH	
L363	ELESN150JA	COIL PEAKING 15UH	
L364	ELESN4R7JA	RADIAL INDUCTOR	
L366	ELEBD101KA	COIL 100UH	
L500	TALL08TR82MA	COIL	
L501	EXCELSA35T	FERRITE BEAD	
L510	EXCELDR25V	FERRITE BEAD	
L511	EXCELDR25V	FERRITE BEAD	
L515	EXCELDR25V	FERRITE BEAD	
L516	EXCELDR25V	FERRITE BEAD	
L555	ELH5L718	COIL	
L701	ELESN100KA	COIL PEAKING 10UH	
L702	EXCELSA35T	FERRITE BEAD	
L703	ELC18B152L	FILTER	
L704	ELC18B151G	FILTER	
L805	EXCELDR25V	FERRITE BEAD	
L806	EXCELDR25V	FERRITE BEAD	
L808	EXCELDR35V	FERRITE BEAD	

Ref. No.	Part No.	Part Name & Description	Remarks
L810	EXCELDR25V	FERRITE BEAD	
L811	EXCELDR25V	FERRITE BEAD	
L815	EXCELSA39E	EMI BEAD CORE	
L816	EXCELSA39E	EMI BEAD CORE	
L817	TALL08T680KA	COIL	
L818	TALL08T680KA	COIL	
L819	EXCELDR35V	FERRITE BEAD	
L820	EXCELDR35V	FERRITE BEAD	
L821	EXCELDR35V	FERRITE BEAD	
L825	TALL08T330KA	COIL	
L826	TALL08T330KA	COIL	
L827	TALL08T330KA	COIL	
L880	TALL08T220KA	COIL	
L881	TALL08T221KA	COIL	
L882	TALL08T220KA	COIL	
L883	G0ZZ00001909	INT CKT	
L884	TALFP15B151K	LINE FILTER	
L885	G0ZZ00001909	INT CKT	
L886	G0A101E00003	COIL	
L887	G0A101E00003	COIL	
L888	G0A470F00004	COIL	
L889	TALL08T221KA	COIL	
L890	TALL08T221KA	COIL	
L892	G0ZZ00001909	INT CKT	
L893	G0ZZ00001909	INT CKT	
L894	G0A101E00003	COIL	
L895	G0A101E00003	COIL	
L901	EXCELSA35T	FERRITE BEAD	
L902	EXCELSA35T	FERRITE BEAD	
L903	EXCELSA35T	FERRITE BEAD	
L933	EXCELSA35T	FERRITE BEAD	
L934	EXCELSA35T	FERRITE BEAD	
L935	EXCELSA35T	FERRITE BEAD	
L961	EXCELSA35T	FERRITE BEAD	
L962	EXCELSA35T	FERRITE BEAD	
L963	EXCELSA35T	FERRITE BEAD	
L1301	EXCELSA35T	FERRITE BEAD	
L1302	EXCELSA39V	EMI BEAD CORE	
L1303	EXCELSA39V	EMI BEAD CORE	
L1304	EXCELSA39V	EMI BEAD CORE	
L1305	EXCELSA39V	EMI BEAD CORE	
L1306	EXCELSA39V	EMI BEAD CORE	
L2201	ELESN100JA	COIL PEAKING 10UH	
L2310	EXCELDR35V	FERRITE BEAD	
L2311	ELC12E390L	CHOKE COIL 39UH	
L2314	EXCELDR35V	FERRITE BEAD	
L2315	ELC12E390L	CHOKE COIL 39UH	
L2317	TALL08T330KA	COIL	
L2318	TALL08T330KA	COIL	
L2354	EXCELSA35T	FERRITE BEAD	
L2355	EXCELSA35T	FERRITE BEAD	
L7001	EXCELSA39V	EMI BEAD CORE	
L7002	EXCELSA39V	EMI BEAD CORE	
L7003	EXCELSA39V	EMI BEAD CORE	

Ref. No.	Part No.	Part Name & Description	Remarks
L7004	EXCELSA39V	EMI BEAD CORE	
L7005	EXCELSA39V	EMI BEAD CORE	
L7006	EXCELSA39V	EMI BEAD CORE	
LF801	ELF21N035A	LINE FILTER	⚠
LF803	ELF21N035A	LINE FILTER	⚠
		TRANSISTORS	
Q301	2SC1473ATA	TRANSISTOR	
Q302	2SC3526H	TRANSISTOR	
Q303	2SC1473ATA	TRANSISTOR	
Q304	2SA1309ATA	TRANSISTOR	
Q325	2SC3311ATA	TRANSISTOR	
Q331	2SC3526H	TRANSISTOR	
Q332	2SA1309ATA	TRANSISTOR	
Q353	2SC3942LB	TRANSISTOR	
Q354	B1BAAN000025	TRANSISTOR	
Q355	B1BCAN000004	TRANSISTOR	
Q362	2SC3311ATA	TRANSISTOR	
Q363	2SC3526H	TRANSISTOR	
Q364	2SA1309ATA	TRANSISTOR	
Q365	2SC3311ATA	TRANSISTOR	
Q366	2SC3311ATA	TRANSISTOR	
Q367	2SA1309ATA	TRANSISTOR	
Q368	2SA1309ATA	TRANSISTOR	
Q373	2SC3942LB	TRANSISTOR	
Q374	B1BAAN000025	TRANSISTOR	
Q375	B1BCAN000004	TRANSISTOR	
Q376	2SC3311ATA	TRANSISTOR	
Q393	2SC3942LB	TRANSISTOR	
Q394	B1BAAN000025	TRANSISTOR	
Q395	B1BCAN000004	TRANSISTOR	
Q397	2SC3311ATA	TRANSISTOR	
Q406	2PD601AR-115	TRANSISTOR	
Q501	B1CEML000001	TRANSISTOR	
Q509	2SC1473QRTA	TRANSISTOR	
Q510	2SC1473QRTA	TRANSISTOR	
Q512	2PD601AR-115	TRANSISTOR	
Q513	2PD601AR-115	TRANSISTOR	
Q551	B1BAJW000001	TRANSISTOR	
Q606	2PD601AR-115	TRANSISTOR	
Q701	2SK2538000LB	TRANSISTOR	
Q801	2SK2917LB	TRANSISTOR	
Q802	2PD601AR-115	TRANSISTOR	
Q803	2PB709AR-115	TRANSISTOR	
Q854	2SA19610QAHW	TRANSISTOR	
Q881	UN2214TX	TRANSISTOR	
Q882	UN2115TX	TRANSISTOR	
Q883	UN2215TX	TRANSISTOR	
Q901	2SB1321ARA	TRANSISTOR	
Q903	2SA1309ATA	TRANSISTOR	
Q904	2SD1992ARA	TRANSISTOR	
Q905	2SC3311ATA	TRANSISTOR	
Q906	2SC3311ATA	TRANSISTOR	
Q907	2SA1309ATA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q908	2SC3311ATA	TRANSISTOR	
Q934	2SA1309ATA	TRANSISTOR	
Q935	2SC3311ATA	TRANSISTOR	
Q936	2SC3311ATA	TRANSISTOR	
Q937	2SA1309ATA	TRANSISTOR	
Q938	2SB1321ARA	TRANSISTOR	
Q941	2SD1992ARA	TRANSISTOR	
Q951	2SC3311ATA	TRANSISTOR	
Q952	2SC3311ATA	TRANSISTOR	
Q953	2SC3311ATA	TRANSISTOR	
Q955	2SA1248SRA	TRANSISTOR	
Q956	2SC3116SRA	TRANSISTOR	
Q957	2SA1248SRA	TRANSISTOR	
Q958	2SC3116SRA	TRANSISTOR	
Q959	2SA1248SRA	TRANSISTOR	
Q960	2SC3116SRA	TRANSISTOR	
Q961	2SB1321ARA	TRANSISTOR	
Q962	2SC3311ATA	TRANSISTOR	
Q964	2SD1992ARA	TRANSISTOR	
Q965	2SA1309ATA	TRANSISTOR	
Q966	2SC3311ATA	TRANSISTOR	
Q967	2SC3311ATA	TRANSISTOR	
Q968	2SA1309ATA	TRANSISTOR	
Q1503	2SA1309ATA	TRANSISTOR	
Q1504	B1BAAV000003	TRANSISTOR	
Q1505	2SC3311ATA	TRANSISTOR	
Q2301	UN2215TX	TRANSISTOR	
Q2302	2PB709AR-115	TRANSISTOR	
Q2303	2PD601AR-115	TRANSISTOR	
Q2304	2PB709AR-115	TRANSISTOR	
Q2305	UN2115TX	TRANSISTOR	
Q2306	UNR221600L	TRANSISTOR	
Q2307	UNR221600L	TRANSISTOR	
Q2308	2PD601AR-115	TRANSISTOR	
Q2309	2PD601AR-115	TRANSISTOR	
Q2350	UNR221600L	TRANSISTOR	
Q2352	2PB709AR-115	TRANSISTOR	
Q2358	UNR221600L	TRANSISTOR	
Q2451	2PD601AR-115	TRANSISTOR	
Q2452	2PD601AR-115	TRANSISTOR	
Q7006	2PD601AR-115	TRANSISTOR	
Q7007	2PD601AR-115	TRANSISTOR	
Q7060	2PB709AR-115	TRANSISTOR	
Q7061	2PD601AR-115	TRANSISTOR	
RELAYS			
RL801	K6B1ADA00010	RELAY	⚠
RL802	K6B1ADA00010	RELAY	⚠
RESISTORS			
R001	ERJ6GEYJ101V	RES M 100-J-1/10W	
R002	ERJ6GEYJ101V	RES M 100-J-1/10W	
R004	ERJ6GEYJ101V	RES M 100-J-1/10W	
R005	ERJ6GEYJ101V	RES M 100-J-1/10W	
R008	ERJ6GEYJ103V	RES M 10K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R009	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R010	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R013	ERG1SJ273P	RES M 27K-J-1W	
R015	ERG1SJ273P	RES M 27K-J-1W	
R072	ERDS2TJ101T	RES C 100-J-1/4W	
R073	ERDS2TJ471T	RES C 470-J-1/4W	
R080	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R081	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R082	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R083	ERDS2TJ512T	RES C 5.1K-J-1/4W	
R084	ERDS2TJ912T	RES C 9.1K-J-1/4W	
R086	ERDS2TJ681T	RES C 680-J-1/4W	
R087	ERDS2TJ331T	RES C 330-J-1/4W	
R088	ERDS2TJ392T	RES C 3.9K-J-1/4W	
R089	ERDS2TJ822T	RES C 8.2K-J-1/4W	
R301	ERDS1FJ394P	RES C 390K-J-1/2W	
R302	ERDS2TJ101T	RES C 100-J-1/4W	
R303	EROS2THF2200	RES M 220-F-1/4W	
R304	ERDS2TJ334T	RES C 330K-J-1/4W	
R305	EROS2THF2200	RES M 220-F-1/4W	
R306	EROS2THF1001	RES M 1K-F-1/4W	
R307	ERDS2TJ220T	RES C 22-J-1/4W	
R308	ERDS2TJ334T	RES C 330K-J-1/4W	
R310	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R311	ERDS2TJ470T	RES C 47-J-1/4W	
R312	ERG7ZJ272	RES M 2.7K-J-7W	
R313	ERDS2TJ151T	RES C 150-J-1/4W	
R315	ERDS2TJ563T	RES C 56K-J-1/4W	
R316	ERDS2TJ821T	RES C 820-J-1/4W	
R317	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R318	ERDS2TJ681T	RES C 680-J-1/4W	
R319	ERG12SJ101P	RES M 100-J-1W	
R320	ERDS1FJ330P	RES C 33-J-1/2W	
R321	ERDS1FJ330P	RES C 33-J-1/2W	
R322	ERG12SJ101P	RES M 100-J-1W	
R323	ERDS2TJ470T	RES C 47-J-1/4W	
R325	ERDS2TJ473T	RES C 47K-J-1/4W	
R325	ERDS2TJ473T	RES C 47K-J-1/4W	
R326	ERDS2TJ101T	RES C 100-J-1/4W	
R327	ERC12GK331D	RES C 330-K-1/2W	
R328	ERDS1TJ104T	RES C 100K-J-1/2W	
R329	ERDS1FJ103T	RES C 10K-J-1/2W	
R331	EROS2THF2200	RES M 220-F-1/4W	
R332	ERDS2TJ101T	RES C 100-J-1/4W	
R333	EROS2THF2200	RES M 220-F-1/4W	
R334	ERDS2TJ220T	RES C 22-J-1/4W	
R335	EROS2THF4700	RES M 470-F-1/4W	
R337	ERDS2TJ151T	RES C 150-J-1/4W	
R338	ERDS2TJ681T	RES C 680-J-1/4W	
R341	ERDS2TJ101T	RES C 100-J-1/4W	
R344	ERG7ZJ272	RES M 2.7K-J-7W	
R345	ERDS2TJ470T	RES C 47-J-1/4W	
R346	ERDS2TJ470T	RES C 47-J-1/4W	
R348	ERDS2TJ563T	RES C 56K-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R349	ERDS2TJ821T	RES C 820-J-1/4W	
R350	ERG12SJ101P	RES M 100-J-1W	
R351	ERDS1FJ330P	RES C 33-J-1/2W	
R352	ERDS1FJ330P	RES C 33-J-1/2W	
R353	ERG12SJ101P	RES M 100-J-1W	
R354	ERDS2TJ473T	RES C 47K-J-1/4W	
R355	ERDS1FJ103T	RES C 10K-J-1/2W	
R356	ERC12GK331D	RES C 330-K-1/2W	
R357	ERDS1TJ104T	RES C 100K-J-1/2W	
R360	ERDS2TJ470T	RES C 47-J-1/4W	
R363	ERDS2TJ220T	RES C 22-J-1/4W	
R365	ERDS2TJ221T	RES C 220-J-1/4W	
R366	ERDS2TJ101T	RES C 100-J-1/4W	
R367	EROS2THF2200	RES M 220-F-1/4W	
R368	EROS2THF2200	RES M 220-F-1/4W	
R369	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R370	EROS2THF1470	RES M 1.47K-F-1/4W	
R371	EROS2THF1001	RES M 1K-F-1/4W	
R372	EROS2THF82R0	RES M 82.0-F-1/4W	
R374	ERDS2TJ151T	RES C 150-J-1/4W	
R375	ERDS2TJ470T	RES C 47-J-1/4W	
R378	ERDS2TJ101T	RES C 100-J-1/4W	
R379	ERDS2TJ563T	RES C 56K-J-1/4W	
R380	ERDS2TJ821T	RES C 820-J-1/4W	
R382	ERDS1FJ103T	RES C 10K-J-1/2W	
R383	ERG12SJ101P	RES M 100-J-1W	
R384	ERDS1FJ330P	RES C 33-J-1/2W	
R385	ERDS1FJ330P	RES C 33-J-1/2W	
R386	ERG12SJ101P	RES M 100-J-1W	
R387	ERG7ZJ272	RES M 2.7K-J-7W	
R389	ERDS2TJ473T	RES C 47K-J-1/4W	
R390	ERC12GK331D	RES C 330-K-1/2W	
R391	ERDS1TJ104T	RES C 100K-J-1/2W	
R392	EROS2THF8201	RES M 8.2K-F-1/4W	
R393	EROS2THF5101	RES M 8.2K-F-1/4W	
R394	EROS2THF9760	RES M 976-F-1/4W	
R395	ERDS2TJ221T	RES C 220-J-1/4W	
R396	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R397	EROS2THF1201	RES M 1.2K-F-1/4W	
R398	EROS2THF3300	RES M 330-F-1/4W	
R408	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R409	ERDS2TJ563T	RES C 56K-J-1/4W	
R410	ERJ6GEYJ224V	RES M 220K-J-1/10W	
R411	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R412	ERJ6GEYJ682V	RES M 6.8K-J-1/10W	
R415	ERG3FJ331H	RES M 330-J-3W	
R421	ERJ6ENF2702V	RES M 27K-F-1/10W	
R422	ERJ6ENF82R0V	RES M 82-F-1/10W	
R423	ERJ6ENF5601V	RES M 5.6K-F-1/10W	
R425	ERDS1FJ1R0T	RES C 1.0-J-1/2W	
R426	ERJ6ENF1502V	RES M 15K-F-1/10W	
R428	ERJ6ENF1502V	RES M 15K-F-1/10W	
R434	ERX12SJ1R8V	RES M 1.8-J-1/2W	
R435	ERX12SJ1R8V	RES M 1.8-J-1/2W	

Ref. No.	Part No.	Part Name & Description	Remarks
R464	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R465	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R465	ERJ6GEYJ472V	ES M 4.7K-J-1/10W	
R466	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R470	ERDS2TJ331T	RES C 330-J-1/4W	
R471	ERDS2TJ331T	RES C 330-J-1/4W	
R472	ERDS2TJ331T	RES C 330-J-1/4W	
R501	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R502	ERJ6GEYJ680V	RES M 68-J-1/10W	
R503	ERG2FJ180H	RES M 18-J-2W	
R504	ERG3FJ271H	RES M 270-J-3W	
R505	ERG1SJ120P	RES M 12-J-1W	
R506	ERX1SJR47P	RES M .47-J-1W	
R512	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R513	ERDS2TJ471T	RES C 470-J-1/4W	
R514	EROS2THF5602	RES M 56K-F-1/4W	
R515	EROS2THF4642	RES M 45.4K 1/4W	
R516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R517	EROS2THF2002	RES M 20K-F-1/4W	
R518	ERX12SJR22V	RES M .22-J-1/2W	
R519	ERQ12HKR22P	RES F .22-K-1/2W	
R520	ERQ12HJ330P	RES F 33-J-1/2W	⚠
R521	EROS2THF2612	RES M 260-1/4W	⚠
R522	EROS2THF7151	RES M 7.15K-F-1/4W	⚠
R523	ERDS2TJ275T	RES C 2.7MEG-J-1/4W	
R524	EROS2THF2002	RES M 20K-F-1/4W	
R525	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R534	EROS2THF1203	RES M 120K-F-1/4W	
R535	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R541	ERDS2TJ563T	RES C 56K-J-1/4W	
R550	EROS2THF1002	RES M 10K-F-1/4W	
R560	ERJ6GEYJ101V	RES M 100-J-1/10W	
R561	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R562	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R621	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R622	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R624	ERJ6GEYJ101V	RES M 100-J-1/10W	
R643	ERJ6GEYJ101V	RES M 100-J-1/10W	
R653	ERDS2TJ101T	RES C 100-J-1/4W	
R654	ERDS2TJ184T	RES C 180K-J-1/4W	
R655	ERDS2TJ184T	RES C 180K-J-1/4W	
R704	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R706	ERDS1FJ680T	RES C 68-J-1/2W	
R708	ERF5AK4R7H	RES W 4.7-K-5W	
R800	D1F53R3EA001	RES M 3.3-1/2W	⚠
R805	ERDS2TJ101T	RES C 100-J-1/4W	
R808	ERX12SZJR12P	RES M .12-J-1/2W	
R809	ERJ6GEYJ225V	RES M 2.2M-J-1/10W	
R810	ERX12SZJR12P	RES M .12-J-1/2W	
R811	ERX12SZJR12P	RES M .12-J-1/2W	
R812	ERDS2TJ103T	RES C 10K-J-1/4W	
R813	ERDS1FJ561T	RES C 560-J-1/2W	
R814	ERDS2TJ4R7T	RES C 4.7-J-1/4W	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
R815	ERJ6GEYJ301V	RES M 300-J-1/10W	
R816	ERDS2TJ471T	RES C 470-J-1/4W	
R817	ERJ6ENF2001V	RES M 2K-F-1/10W	
R818	ERDS1FJ100T	RES C 10-J-1/2W	
R820	ERDS1FJ470T	RES C 47-J-1/2W	
R822	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R833	ERJ6GEYJ101V	RES M 100-J-1/10W	
R835	ERDS2TJ101T	RES C 100-J-1/4W	
R836	ERJ6GEYJ101V	RES M 100-J-1/10W	
R839	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R840	ERJ6GEYJ101V	RES M 100-J-1/10W	
R846	ERDS2TJ223T	RES C 22K-J-1/4W	
R847	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R857	ERX1SJ1R0P	RES M 1.0-J-1W	
R858	ERX1SJ1R0P	RES M 1.0-J-1W	
R859	ERDS2TJ103T	RES C 10K-J-1/4W	
R860	ERDS1FJ222T	RES C 2200-J-1/2W	
R862	ERG3FJ333H	RES M 33K-J-3W	
R865	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R866	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R867	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R870	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R871	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R872	ERJ6GEYJ333V	RES M 33K-J-1/10W	
R873	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R874	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R875	ERJ6ENF6191V	RES M 6190-F-1/10W	
R877	ERJ6ENF1781V	RES M 1.78K-F-1/10W	
R878	ERJ6ENF1001V	RES M 1K-F-1/10W	
R879	ERJ6ENF1001V	RES M 1K-F-1/10W	
R880	ERJ6ENF1001V	RES M 1K-F-1/10W	
R881	ERDS1TJ560T	RES C 56-J-1/2W	
R882	ERJ6ENF9530V	RES M 953-F-1/10W	
R883	ERJ6ENF6340V	RES M 634-F-1/10W	
R885	ERJ6ENF1001V	RES M 1K-F-1/10W	
R886	ERJ6ENF1001V	RES M 1K-F-1/10W	
R901	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R902	ERDS2TJ103T	RES C 10K-J-1/4W	
R903	ERDS2TJ683T	RES C 68K-J-1/4W	
R904	ERDS2TJ683T	RES C 68K-J-1/4W	
R905	ERDS2TJ103T	RES C 10K-J-1/4W	
R906	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R907	ERDS1FVJ470T	RES C 47-J-1/2W	
R908	ERDS1FVJ470T	RES C 47-J-1/2W	
R909	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R910	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R911	ERG3SJS221H	RES M 220-J-3W	
R912	ERDS2TJ101T	RES C 100-J-1/4W	
R913	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R914	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R915	ERQ14AJ220P	RES F 22-J-1/4W	
R916	ERQ14AJ220P	RES F 22-J-1/4W	
R917	ERQ14AJ100P	RES F 10-J-1/4W	
R918	ERDS2TJ472T	RES C 4.7K-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R919	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R920	ERDS2TJ681T	RES C 680-J-1/4W	
R921	ERDS2TJ151T	RES C 150-J-1/4W	
R925	ERDS2TJ151T	RES C 150-J-1/4W	
R926	ERDS2TJ151T	RES C 150-J-1/4W	
R928	ERQ14AJ220P	RES F 22-J-1/4W	
R929	ERDS2TJ101T	RES C 100-J-1/4W	
R940	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R941	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R942	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R943	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R944	ERDS2TJ681T	RES C 680-J-1/4W	
R945	ERDS2TJ681T	RES C 680-J-1/4W	
R946	ERQ14AJ100P	RES F 10-J-1/4W	
R947	ERQ14AJ220P	RES F 22-J-1/4W	
R948	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R949	ERDS2TJ103T	RES C 10K-J-1/4W	
R950	ERDS2TJ683T	RES C 68K-J-1/4W	
R951	ERDS2TJ683T	RES C 68K-J-1/4W	
R952	ERDS2TJ103T	RES C 10K-J-1/4W	
R953	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R954	ERDS1FVJ470T	RES C 47-J-1/2W	
R955	ERDS1FVJ470T	RES C 47-J-1/2W	
R956	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R957	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R958	ERG3SJS221H	RES M 220-J-3W	
R959	ERDS2TJ681T	RES C 680-J-1/4W	
R961	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R962	ERDS2TJ103T	RES C 10K-J-1/4W	
R963	ERDS2TJ683T	RES C 68K-J-1/4W	
R964	ERDS2TJ683T	RES C 68K-J-1/4W	
R965	ERDS2TJ103T	RES C 10K-J-1/4W	
R966	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R967	ERDS1FVJ470T	RES C 47-J-1/2W	
R968	ERDS1FVJ470T	RES C 47-J-1/2W	
R969	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R970	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R971	ERG3SJS221H	RES M 220-J-3W	
R972	ERDS2TJ101T	RES C 100-J-1/4W	
R973	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R974	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R975	ERQ14AJ100P	RES F 10-J-1/4W	
R976	ERQ14AJ220P	RES F 22-J-1/4W	
R977	ERDS2TJ151T	RES C 150-J-1/4W	
R978	ERQ14AJ220P	RES F 22-J-1/4W	
R979	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R980	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R981	ERDS2TJ681T	RES C 680-J-1/4W	
R1322	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1323	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1324	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1325	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1326	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1327	ERJ6GEYJ101V	RES M 100-J-1/10W	

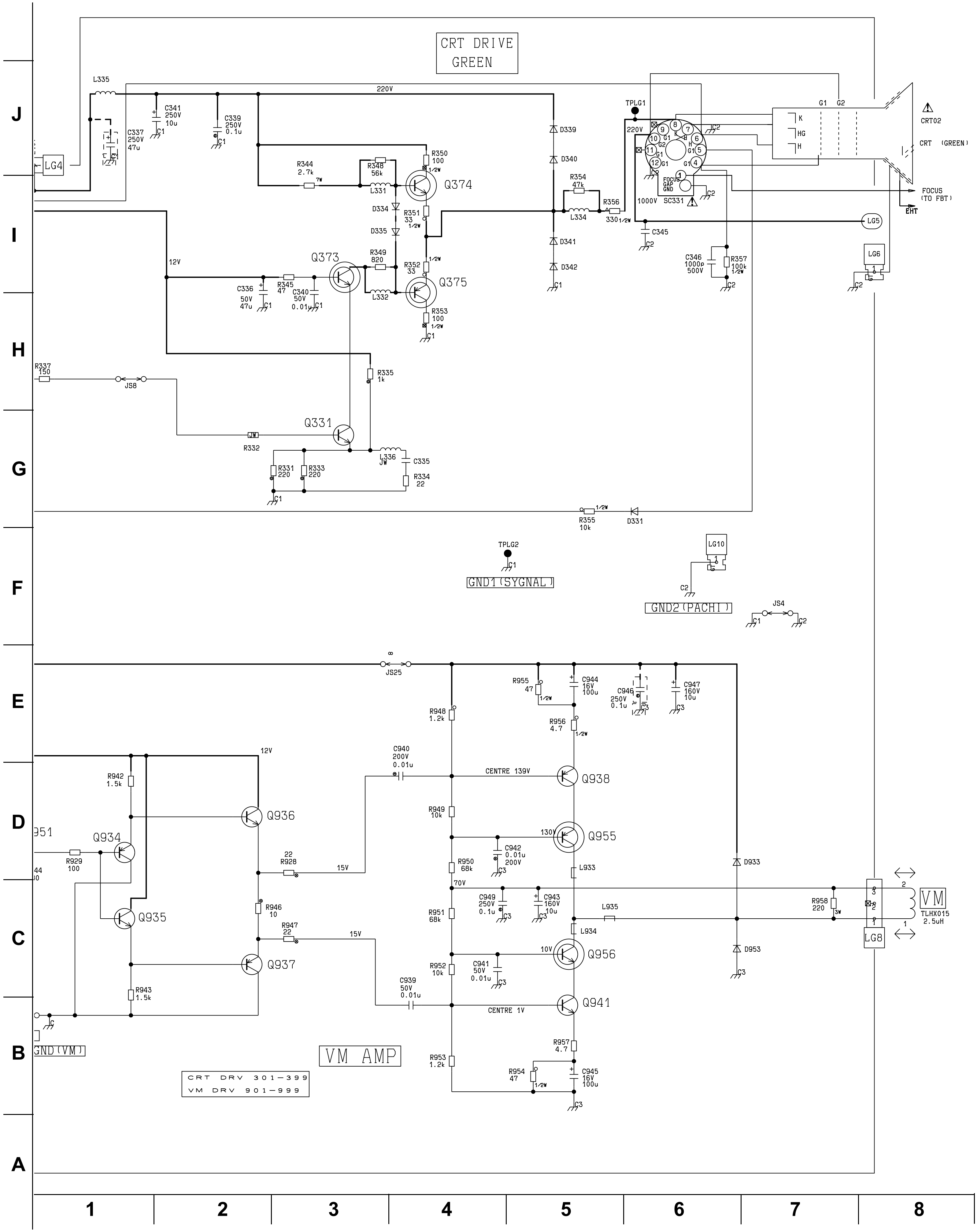
Ref. No.	Part No.	Part Name & Description	Remarks
R1329	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1330	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1331	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1332	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1338	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1502	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1503	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1504	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1505	EROS2THF1331	RES M 1.33K-F-1/4W	
R1506	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1507	ERG3SJD152L	RES M 1.5K-J-3W	
R1508	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R1509	ERDS2TJ102T	RES C 1K-J-1/4W	
R1510	ERG2SJD333L	RES M 33K-J-2W	
R1511	ERG2SJD333L	RES M 33K-J-2W	
R1512	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1514	ERG2SJD333L	RES M 33K-J-2W	
R1515	ERJ6ENF1001V	RES M 1K-F-1/10W	
R1516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1517	ERJ6ENF3571V	RES M 3.57K-F-1/10W	
R1518	ERG2SJD333L	RES M 33K-J-2W	
R1519	ERDS2TJ101T	RES C 100-J-1/4W	
R1520	ERDS2TJ221T	RES C 220-J-1/4W	
R1521	EROS2THF1500	RES M 150-F-1/4W	
R1522	ERC12GK103D	RES C 10K-K-1/2W	
R1523	ERDS2TJ104T	RES C 100K-J-1/4W	
R1524	EROS2THF1401	RES M 1.4K-F-1/4W	
R1527	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1528	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R1529	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1532	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1542	ERG2SJD333L	RES M 33K-J-2W	
R1544	ERJ6GEYJ471V	RES M 470-J-1/10W	
R1546	ERJ6GEYJ221V	RES M 220-J-1/10W	
R1599	ERJ6ENF9761V	RES M 9760-F-1/10W	
R2201	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R2202	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2203	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2204	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2302	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2307	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2309	ERJ12YJ101U	RES M 100-J-1/2W	
R2310	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2312	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2315	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2316	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2320	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2321	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2322	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2324	ERJ6ENF1303V	RES M 130K-F-1/10W	
R2326	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2328	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2331	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2333	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R2334	**ERJ6ENF4701V**	**RES M 4.7K-F-1/10W**	
R2336	**ERJ6ENF5232V**	**RES M 5.32K-F-1/10W**	
R2337	**ERJ6ENF1501V**	**RES M 1.5K-F-1/10W**	
R2339	**ERJ12YJ101U**	**RES M 100-J-1/2W**	
R2341	**ERJ6GEYJ122V**	**RES M 1.2K-J-1/10W**	
R2342	**ERJ6GEYJ122V**	**RES M 1.2K-J-1/10W**	
R2343	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2344	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2345	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2346	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2347	**ERJ6GEYJ473V**	**RES M 47K-J-1/10W**	
R2348	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2349	**ERJ6GEYJ271V**	**RES M 270-J-1/10W**	
R2350	**ERJ6GEYJ273V**	**RES M 27K-J-1/10W**	
R2351	**ERJ6GEYJ472V**	**RES M 4.7K-J-1/10W**	
R2352	**ERJ6GEYJ332V**	**RES M 3.3K-J-1/10W**	
R2353	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2354	**ERJ6GEYJ392V**	**RES M 3.9K-J-1/10W**	
R2356	**ERJ6GEYJ183V**	**RES M 18K-J-1/10W**	
R2357	**ERJ6GEYJ332V**	**RES M 3.3K-J-1/10W**	
R2358	**ERJ6GEYJ273V**	**RES M 27K-J-1/10W**	
R2359	**ERJ6GEYJ472V**	**RES M 4.7K-J-1/10W**	
R2360	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2361	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2362	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2363	**ERJ6GEYJ223V**	**RES M 22K-J-1/10W**	
R2364	**ERJ6GEYJ473V**	**RES M 47K-J-1/10W**	
R2365	**ERJ6GEYJ473V**	**RES M 47K-J-1/10W**	
R2366	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2367	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2378	**ERJ6ENF1501V**	**RES M 1.5K-F-1/10W**	
R2380	**ERJ6GEYJ392V**	**RES M 3.9K-J-1/10W**	
R2391	**ERJ6GEYJ392V**	**RES M 3.9K-J-1/10W**	
R2420	**ERJ6GEYJ392V**	**RES M 3.9K-J-1/10W**	
R2432	**ERJ6ENF1501V**	**RES M 1.5K-F-1/10W**	
R2434	**ERJ6GEYJ392V**	**RES M 3.9K-J-1/10W**	
R2451	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2452	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R2453	**ERJ6GEYJ681V**	**RES M 680-J-1/10W**	
R2454	**ERJ6GEYJ681V**	**RES M 680-J-1/10W**	
R2455	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R2456	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R2457	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2458	**ERJ6GEYJ682V**	**RES M 6.8K-J-1/10W**	
R2459	**ERJ6GEYJ332V**	**RES M 3.3K-J-1/10W**	
R2460	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R2461	**ERJ6GEYJ332V**	**RES M 3.3K-J-1/10W**	
R3201	**ERJ6GEYJ750V**	**RES M 75-J-1/10W**	
R3202	**ERJ6GEYJ750V**	**RES M 75-J-1/10W**	
R3301	**ERJ6GEYJ184V**	**RES M 180K-J-1/10W**	
R3302	**ERJ6GEYJ184V**	**RES M 180K-J-1/10W**	
R3303	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3304	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3305	**ERJ6GEYJ184V**	**RES M 180K-J-1/10W**	

Ref. No.	Part No.	Part Name & Description	Remarks
R3306	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3307	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3308	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3309	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3310	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3311	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3312	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3313	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3314	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3315	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3316	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3317	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3318	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3319	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3320	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3321	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3322	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3323	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3324	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3326	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3327	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3328	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R7001	ERG2FJ820H	RES M 82-J-2W	
R7002	ERG2FJ121H	RES M 120-J-2W	
R7003	ERG2FJ820H	RES M 82-J-2W	
R7004	ERG2FJ121H	RES M 120-J-2W	
R7005	ERG2FJ820H	RES M 82-J-2W	
R7006	ERG2FJ121H	RES M 120-J-2W	
R7011	ERX2FJ2R2H	RES M 2.2-J-2W	
R7012	ERX2FJ2R2H	RES M 2.2-J-2W	
R7013	ERX2FJ2R2H	RES M 2.2-J-2W	
R7014	ERX2FJ2R2H	RES M 2.2-J-2W	
R7015	ERX2FJ2R2H	RES M 2.2-J-2W	
R7016	ERX2FJ2R2H	RES M 2.2-J-2W	
R7023	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7024	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7026	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7027	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7029	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7030	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7031	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7032	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7034	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7035	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7036	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7037	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7038	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7040	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7041	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7045	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7046	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7047	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7048	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7052	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R7055	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7058	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7059	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R7060	ERX1SJR27P	RES M .27-J-1W	
R7061	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7062	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7063	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7064	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7065	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7066	ERX1SJR27P	RES M .27-J-1W	
SWITCHES			
SW080	EVQPBD05R	SWITCH	
SW081	EVQPBD05R	SWITCH	
SW082	EVQPBD05R	SWITCH	
SW083	EVQPBD05R	SWITCH	
SW084	EVQPBD05R	SWITCH	
SW085	EVQPBD05R	SWITCH	
SW086	EVQPBD05R	SWITCH	
SW087	EVQPBD05R	SWITCH	
SW088	EVQPBD05R	SWITCH	
TRANSFORMERS			
T501	ETH19K204AZ	TRANSFORMER	
T551	TLF2AA009	TRASNFORMER FLYBACK	⚠
T801	ETS42AD495AD	TRANSFORMER	⚠
T802	ETP30KB941JG	TRANSFORMER	⚠
OTHERS			
TU001	ENGF6302GF	MAIN TUNER	⚠
TU002	ENG36A08GF	SUB-TUNER	⚠
M001	TSX2AA0421	AC LINE CORD	⚠
1	TXFCRT37JSER	CRT(BLUE)	
	TXFCRT38JSER	CRT(GREEN)	
	TXFCRT39JSER	CRT(RED)	
M002	TJS2AC0051	CRT SOCKET	⚠
2	KDY2ASF83F	DEFLECTION YOKE	⚠
M003	TXF3A01ECV	DAG GND	⚠
3	TKG2AF021-1	A/B LENS	
4	TKG2AA50111	MIRROR GLASS	
5	TMW2AX0041B	MIRROR BRACKET (SIDE)	
6	TMW2AX0161	MIRROR BRACKET (TOP)	
7	TKG2AD00131	SCREEN PROTECTIVE	
8	TKG2AH50381	SCREEN LENTICULAR	
9	TKG2AH50611	SCREEN FRESNEL	
10	TKE2AA00902S	SCREEN FRAME	
11	TKP2AA1032S	SCREEN FRAME COVER	
12	TKU2AC4101S	BACK CABINET	
13	TXFKP07JSER	TOP SHELF	
14	TKD2AX5011S	FRONT BOARD	
15	TKP2AA1042S	FRONT COVER	
16	TKP2AA1071S	RIGHT SIDE PANEL	
	TKP2AA1072S	LEFT SIDE PANEL	
17	TKX2AA0221S	PLASTIC BASE	

Ref. No.	Part No.	Part Name & Description	Remarks
18	TKD2AX2831S	INNER BOARD	
19	TKU2AC4201S	LOWER BACK CABINET	
20	EAST6PH08P6	SPEAKER (TWEETER)	
	TAS2AA0022	SPEAKER (TWEETER)	
21	EAST16P51A6	SPEAKER (WOOFER)	
	TAS2AA0027	SPEAKER (WOOFER)	
22	TKP2AA1101S	SPEAKER BASE COVER	
23	TKP2AA1052S	SPEAKER GRILLE	
24	TLH2AH001	DISTRIBUTOR	⚠
25	D9ZZ00000079	FOCUS PACK	⚠
M004	TMX2AX0031	FOCUS BRACKET	
26	TKP2AA1062	SD-A/V PANEL	
M005	TBX2AA0241	DISC BUTTON	
27	TBX2AA0271	KEY BUTTON	
M006	TKP2AA1131	LED PANEL	
M007	TMM2AE10171	GROMMET SQUARE	
28	TXFKP08JSER	A/V REAR COVER	
JK1001	TJB2AA0482	TERMINAL A/V FRONT	
JK3301	TJB2AA0521	CONNECTOR (COMPONENT INPUT)	
JK3302A	TJB2AA0532	CONNECTOR (A/V INPUT)	
JK5001	K1FA119E0001	HDMI CONNECTOR	
OTHER ACCESSORIES			
M008	TQB2AA0506	OWNER’S MANUAL	
M009	EUR7603ZF0	TRANSMITTER REMOTE CONTROL	
M010	UR76EC0303E	BATTERY COVER(REMOTE CONTROL)	

CRT DRIVE
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D342
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R348 56k
L331
R350 100
Q374
D334
D335
R351 33
Q373
R349 820
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R356 330
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C346 1000p 500V
R357 100k
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CRT (GREEN)
FOCUS (TO FBT)
EHT
R337 150
JS8
R335 1k
Q331
R332
R331 220
R333 220
L336
C335
R334 22
R355 10k
D331
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LG10
GND2(PACHI)
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JS25
R955 47
C944 16V 100u
C946 250V 0.1u
C947 160V 10u
R948 1.2k
R956 4.7
C940 200V 0.01u
CENTRE 139V
Q938
R942 1.5k
Q936
Q934
R929 100
R949 10k
Q955
130V
C942 0.01u 200V
R950 68k
L933
D933
R928 22
15V
70V
C949 250V 0.1u
C943 160V 10u
L935
R958 220
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LG8
Q935
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R947 22
R951 68k
L934
D953
Q937
Q956
10V
R952 10k
C941 50V 0.01u
C939 50V 0.01u
R943 1.5k
CENTRE 1V
Q941
R957 4.7
R953 1.2k
R954 47
C945 16V 100u
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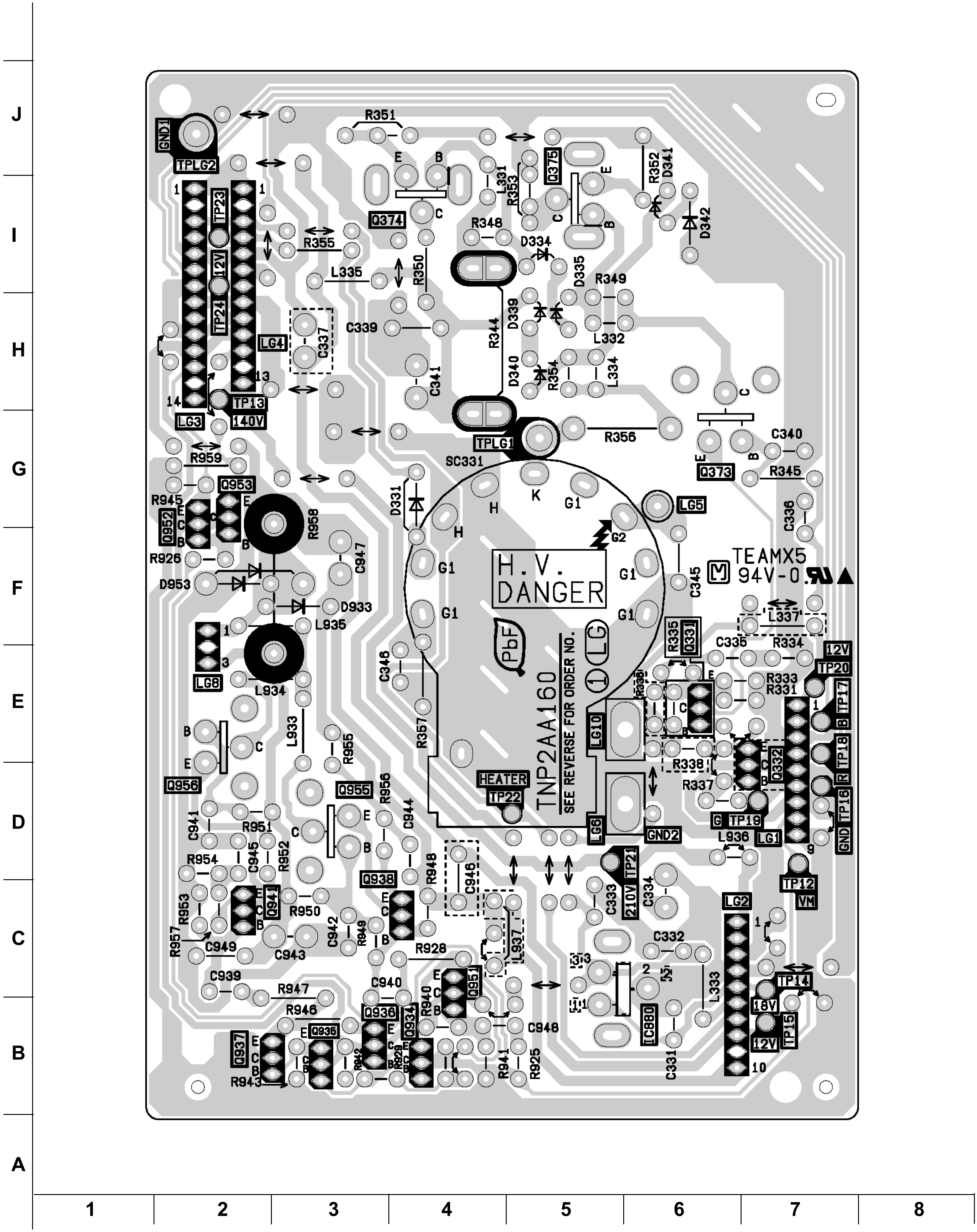
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R334
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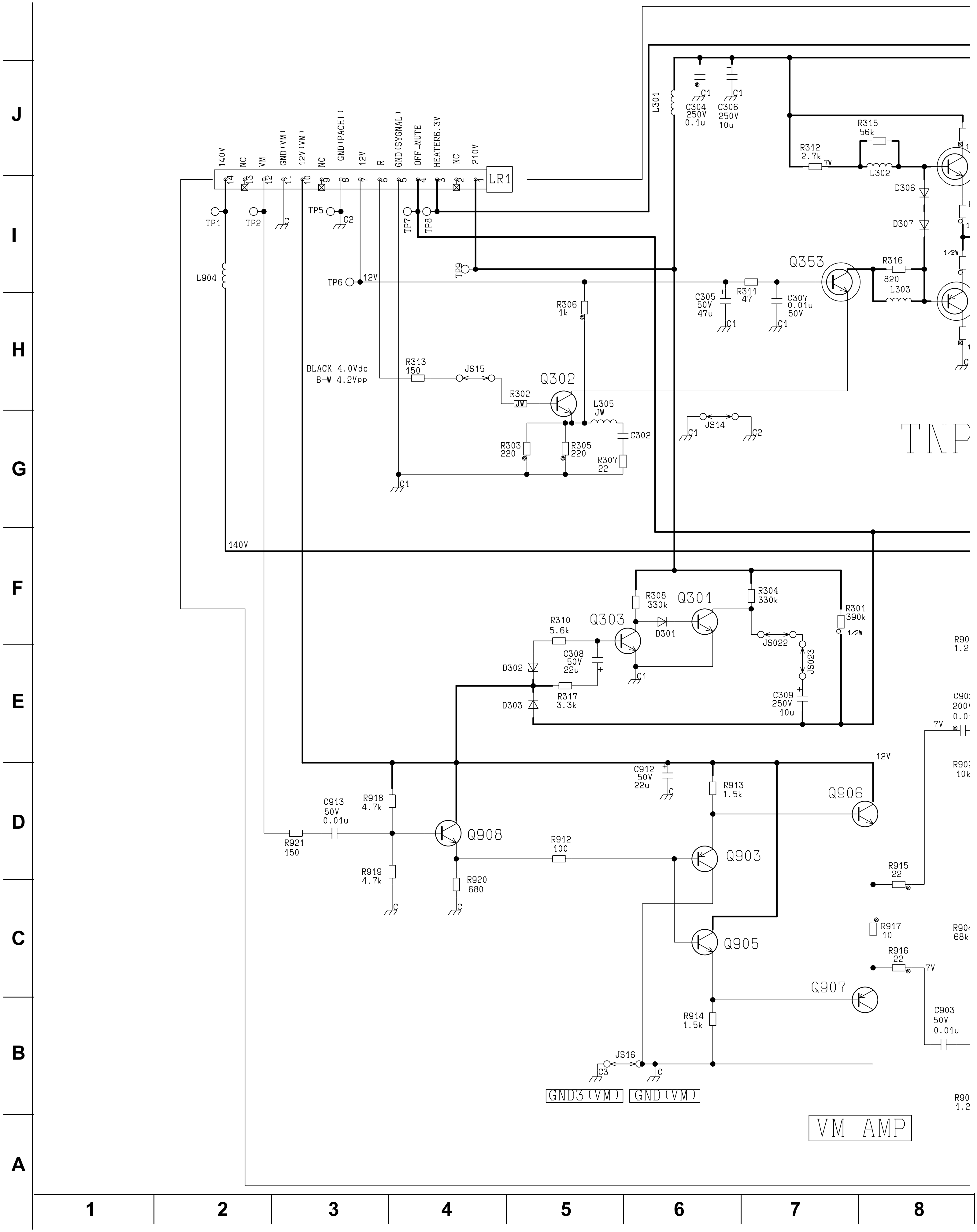
TP20
R333
R331
TP17
R357
L933
R955
LG10
R338
Q332
TP18
R337
TP16
Q956
Q955
R956
C944
HEATER
TP22
TP19
LG1
LG6
GND2
L936
GND
C941
R951
R954
C945
R952
Q938
R948
C946
TP21
210V
C333
C334
TP12
VM
R953
Q941
R950
C942
R949
L937
LG2
R957
C949
C943
R928
C332
C939
C940
R947
Q951
IC880
L333
TP14
18V
R946
Q936
R940
C948
Q937
Q935
Q934
R943
R942
R929
R941
R925
C331
TP15


J
I
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C
B
A
1
2
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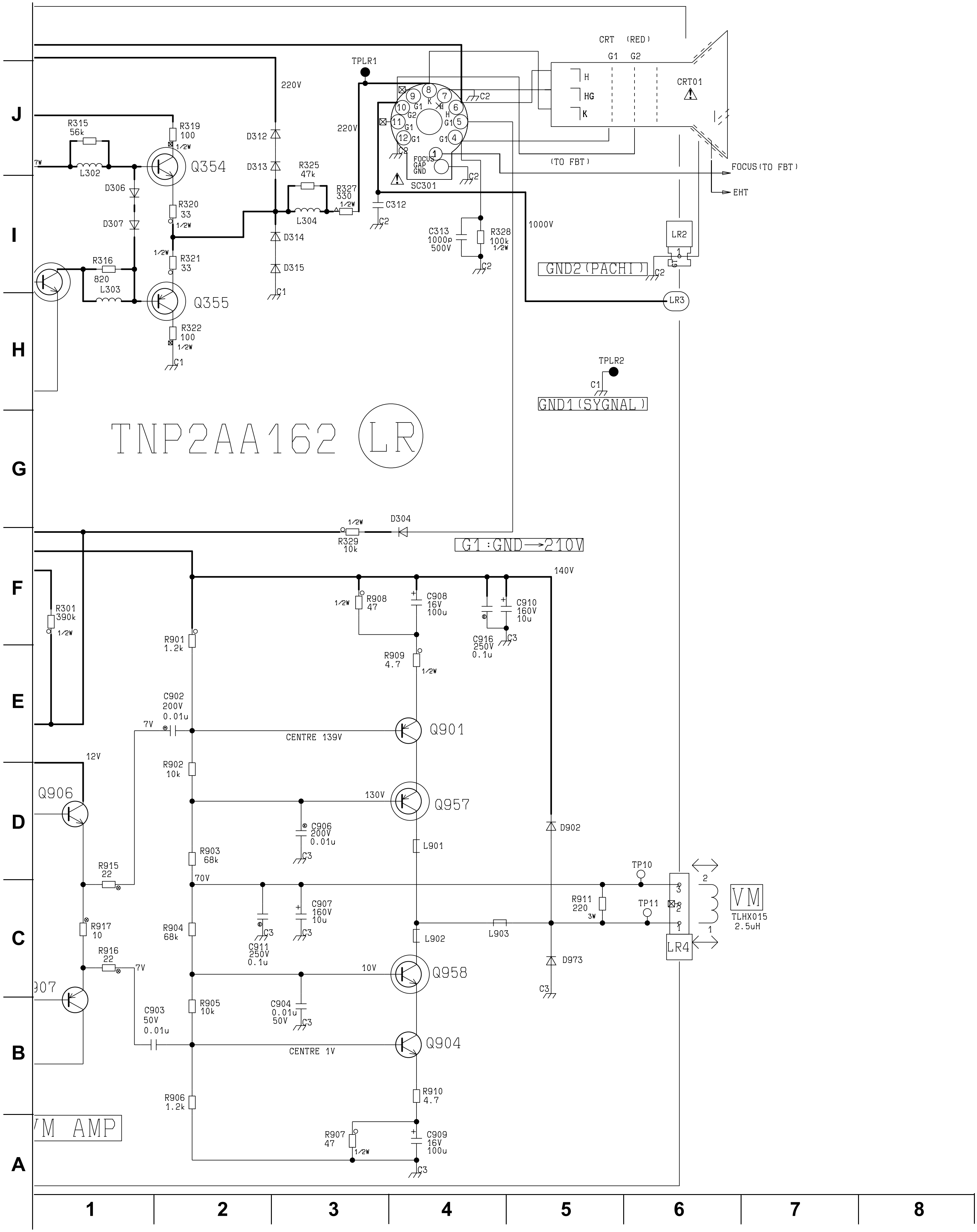
4
5
6
7
8
LR1
140V
NC
VM
GND(VM)
12V(VM)
NC
GND(PACHI)
12V
R
GND(SYGNAL)
OFF_MUTE
HEATER6.3V
NC
210V
14
13
12
11
10
9
8
7
6
5
4
3
2
1
TP1
TP2
TP5
C2
TP7
TP8
TP9
TP6
12V
L904
140V
L301
C304
250V
0.1u
C306
250V
10u
C1
R315
56k
R312
2.7k
7W
L302
D306
D307
Q353
R316
820
L303
1/2W
C305
50V
47u
R311
47
C307
0.01u
50V
R306
1k
BLACK 4.0Vdc
B-W 4.2Vpp
R313
150
JS15
Q302
R302
JW
L305
JW
C302
JS14
C1
C2
R303
220
R305
220
R307
22
TNP
R308
330k
Q301
R304
330k
R301
390k
1/2W
R310
5.6k
Q303
D301
C308
50V
22u
JS022
JS023
D302
D303
R317
3.3k
C309
250V
10u
12V
C912
50V
22u
R913
1.5k
Q906
C913
50V
0.01u
R918
4.7k
Q908
R921
150
R912
100
Q903
R919
4.7k
R920
680
R915
22
7V
R917
10
Q905
R916
22
7V
Q907
C903
50V
0.01u
R914
1.5k
JS16
C3
C
GND3(VM)
GND(VM)
VM AMP
R90
1.2
C90
200V
0.0
R90
10k
R90
68k
R90
1.2


J
I
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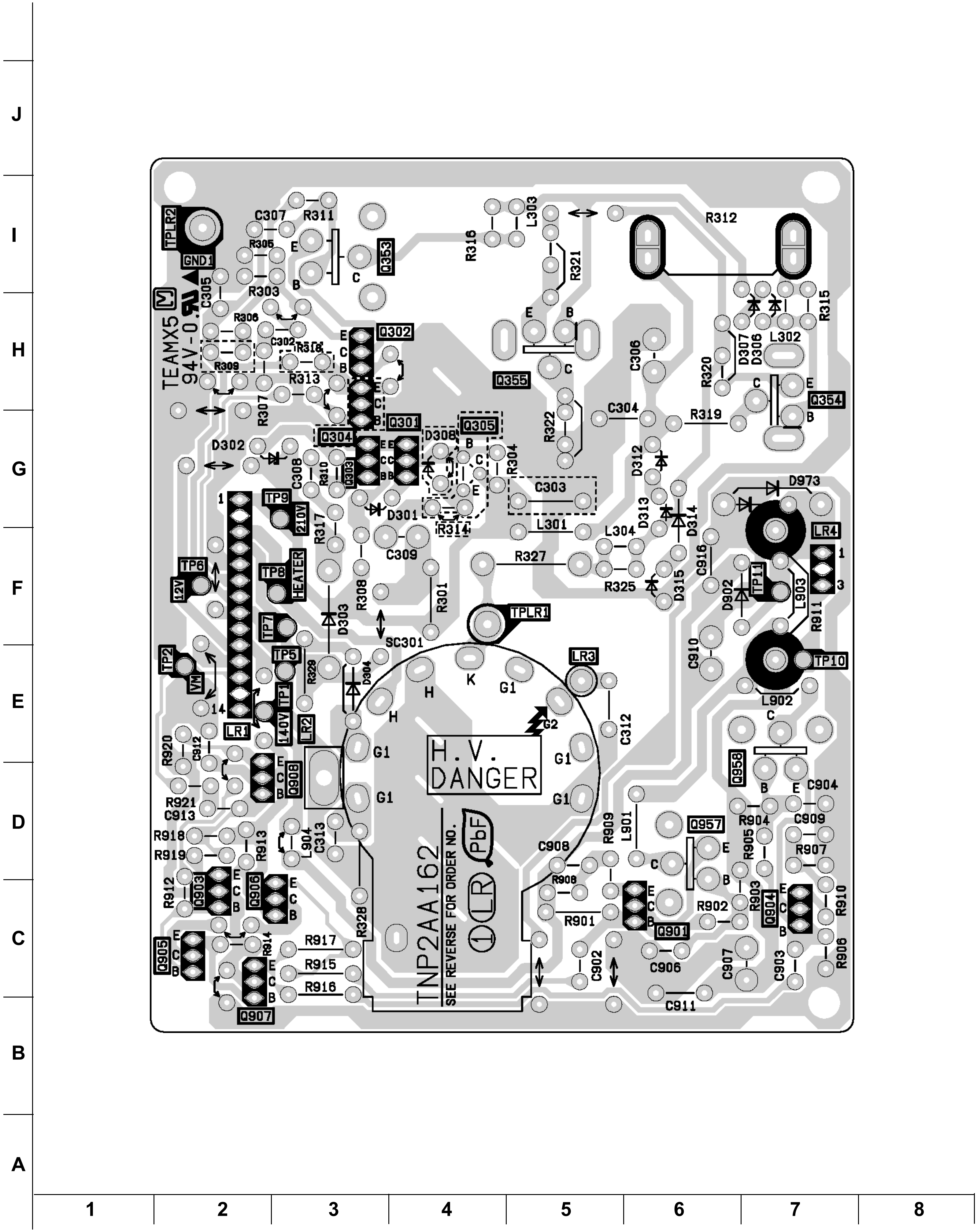
8
CRT (RED)
G1 G2
H
HG
K
CRT01
TPLR1
220V
220V
C2
SC301
FOCUS
GAP
GND
9 8 7 6 5 4 1 10 11 12
G1 G2 K H G1
(TO FBT)
FOCUS (TO FBT)
EHT
R315 56k
L302
R319 100 1/2W
Q354
D312
D313
R325 47k
R327 330 1/2W
L304
C312
C313 1000p 500V
R328 100k 1/2W
1000V
D306
D307
R320 33 1/2W
R321 33 1/2W
D314
D315
C1
LR2
GND2 (PACHI)
LR3
R316 820
L303
Q355
R322 100 1/2W
TPLR2
GND1 (SYGNAL)
TNP2AA162 LR
1/2W
D304
R329 10k
G1 : GND → 210V
140V
R301 390k 1/2W
R908 47 1/2W
C908 16V 100u
C910 160V 10u
C916 250V 0.1u
C3
R901 1.2k
R909 4.7 1/2W
C902 200V 0.01u
7V
CENTRE 139V
Q901
12V
R902 10k
130V
Q957
Q906
C906 200V 0.01u
D902
L901
R903 68k
R915 22
70V
TP10
R911 220 3W
TP11
C907 160V 10u
VM
TLHX015 2.5uH
R917 10
R904 68k
C911 250V 0.1u
L902
L903
LR4
3 2 1
R916 22
7V
10V
Q958
D973
907
C903 50V 0.01u
R905 10k
C904 0.01u 50V
CENTRE 1V
Q904
R906 1.2k
R910 4.7
VM AMP
R907 47 1/2W
C909 16V 100u


J
I
H
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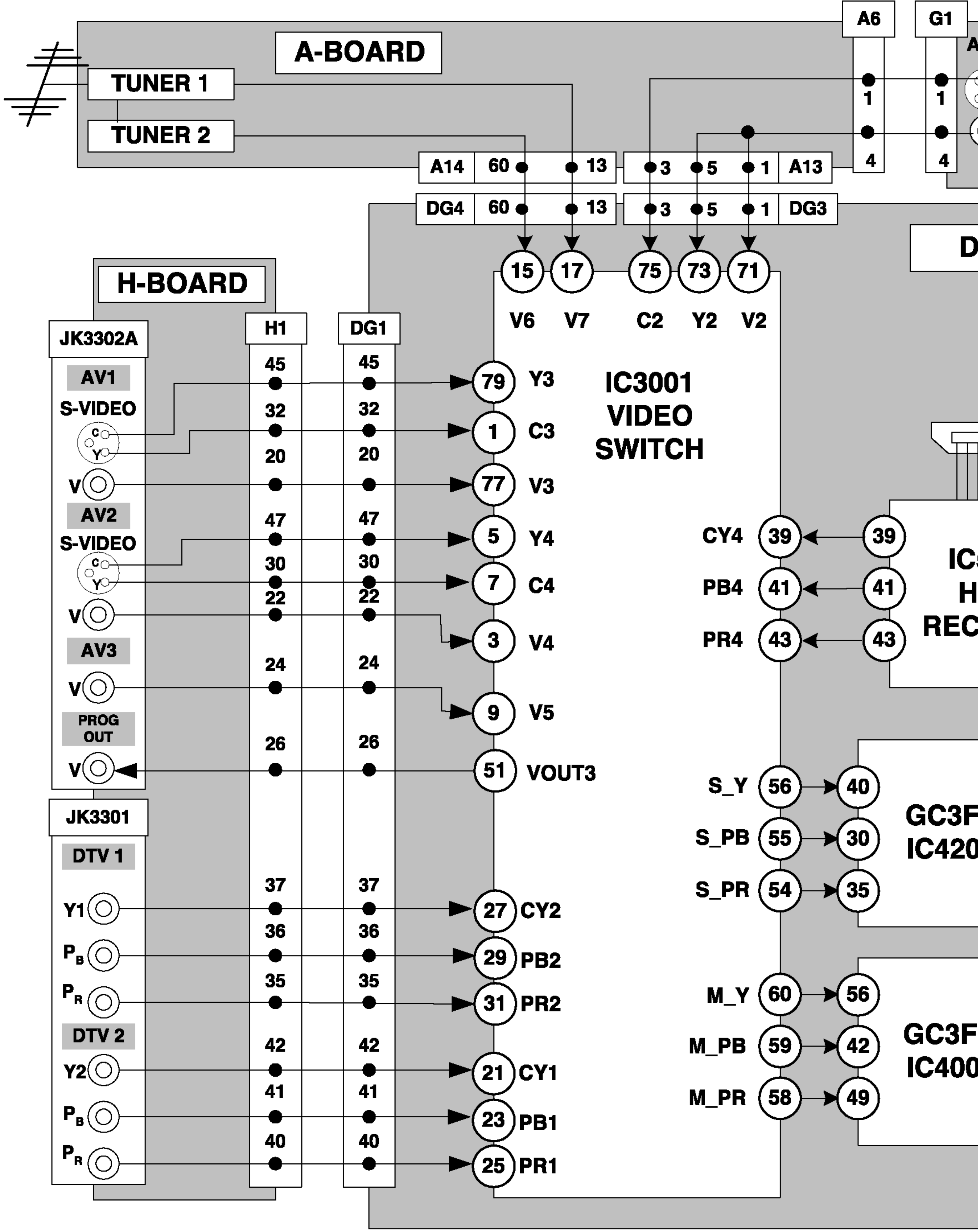
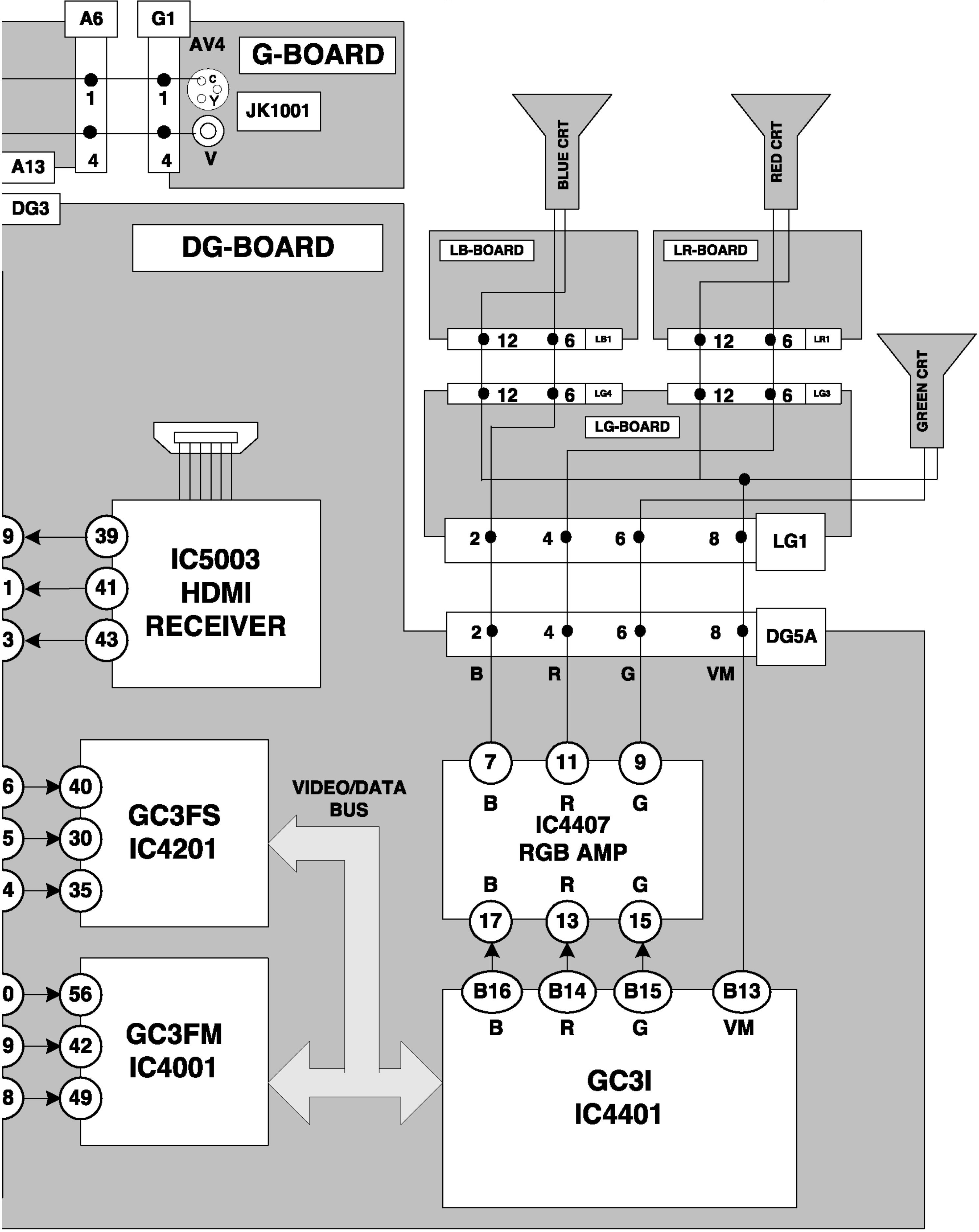
F
E
D
C
B
A
1
2
3
4
5
6
7
8
TPLR2
GND1
C307
R311
R305
E
C
B
Q353
R303
C305
TEAMX5
94V-0
R306
C302
R309
R318
R313
R307
Q302
Q304
Q303
Q301
D302
C308
R310
R316
L303
R321
R312
D307
D306
L302
R320
R315
Q355
C306
C304
R319
Q354
R322
D308
Q305
R304
C303
D301
R314
L301
D312
D313
D314
D973
LR4
C309
R317
R327
L304
R325
D315
C916
D902
TP11
L903
R911
TP9
210V
TP6
12V
TP8
HEATER
TP7
TP2
VM
TP5
TP1
140V
LR1
LR2
R329
D303
R308
R301
SC301
TPLR1
D304
LR3
H
K
G1
G2
C312
H.V.
DANGER
C910
TP10
L902
Q958
C904
R904
C909
R905
R907
Q957
R909
L901
C908
R908
R901
Q901
R902
R903
Q904
R910
R906
C906
C907
C903
C902
C911
R920
C912
R921
C913
Q908
R918
R919
R913
L904
C313
R912
Q903
Q906
R328
Q905
R914
R917
R915
R916
Q907
TNP2AA162
SEE REVERSE FOR ORDER NO.
PbF
LR
1
3
14

Video signal path block diagram



A6
G1
A-BOARD
TUNER 1
TUNER 2
1
1
4
4
A14
60
13
3
5
1
A13
DG4
60
13
3
5
1
DG3
15
17
75
73
71
V6
V7
C2
Y2
V2
D
H-BOARD
JK3302A
H1
DG1
AV1
S-VIDEO
C
Y
45
45
79
Y3
IC3001
VIDEO
SWITCH
32
32
1
C3
20
20
V
77
V3
AV2
S-VIDEO
C
Y
47
47
5
Y4
30
30
7
C4
22
22
V
3
V4
CY4
39
39
PB4
41
41
PR4
43
43
IC
H
REC
AV3
24
24
V
9
V5
PROG
OUT
26
26
V
51
VOUT3
S_Y
56
40
S_PB
55
30
S_PR
54
35
GC3F
IC420
JK3301
DTV 1
37
37
Y1
27
CY2
36
36
PB
29
PB2
35
35
PR
31
PR2
M_Y
60
56
M_PB
59
42
M_PR
58
49
GC3F
IC400
DTV 2
42
42
Y2
21
CY1
41
41
PB
23
PB1
40
40
PR
25
PR1

Video signal path block diagram



A6
G1
AV4
G-BOARD
C
Y
1
1
JK1001
V
A13
4
4
DG3
DG-BOARD
BLUE CRT
RED CRT
LB-BOARD
LR-BOARD
12
6
LB1
12
6
LR1
GREEN CRT
12
6
LG4
12
6
LG3
LG-BOARD
39
41
43
IC5003
HDMI
RECEIVER
2
4
6
8
LG1
2
4
6
8
DG5A
B
R
G
VM
7
11
9
B
R
G
IC4407
RGB AMP
B
R
G
17
13
15
40
30
35
GC3FS
IC4201
VIDEO/DATA
BUS
B16
B14
B15
B13
B
R
G
VM
56
42
49
GC3FM
IC4001
GC3I
IC4401

A - BOARD - TNP2AH058

IC1302	
1	0.00
2	0.00
3	0.00
4	0.00
5	2.30
6	2.60
7	0.00
8	3.30

IC1303	
1	0.00
2	0.00
3	0.00
4	0.00
5	4.90
6	4.90
7	4.90
8	4.90

IC2201			
1	1.60	13	2.80
2	2.20	14	2.20
3	2.20	15	2.50
4	2.30	16	3.50
5	2.40	17	0.00
6	0.07	18	3.20
7	5.00	19	3.40
8	2.50	20	0.00
9	2.60	21	2.20
10	0.80	22	2.20
11	2.30	23	2.20
12	2.50	24	2.20

IC2301			
1	-23.00	14	-21.60
2	-23.00	15	0.00
3	0.30	16	-5.50
4	22.10	17	0.00
5	9.60	18	0.00
6	5.00	19	0.00
7	0.00	20	0.00
8	2.60	21	9.50
9	0.00	22	22.10
10	0.00	23	0.20
11	0.00	24	-23.00
12	5.30	25	-12.50
13	0.00		

IC2401			
1	4.40	16	8.90
2	4.50	17	4.70
3	4.50	18	0.00
4	4.50	19	4.30
5	4.50	20	4.10
6	4.50	21	4.50
7	4.50	22	4.50
8	4.50	23	4.50
9	1.60	24	4.50
10	4.50	25	4.50
11	1.60	26	4.50
12	1.60	27	4.50
13	4.90	28	4.50
14	4.90	29	4.50
15	0.00	30	4.40

IC2303	
1	4.37
2	4.37
3	4.37
4	GND
5	4.37
6	4.37
7	4.37
8	4.77

IC872	
1	19.40
2	9.01
3	0.00
4	1.30
5	N.C.

IC874	
1	19.40
2	5.10
3	0.00
4	1.30
5	N.C.

IC875	
1	19.40
2	3.36
3	0.00
4	1.30
5	N.C.

IC876	
1	19.40
2	2.60
3	0.00
4	1.30
5	N.C.

IC877	
1	19.40
2	1.78
3	0.00
4	1.30
5	N.C.

A - BOARD - TNP2AH058

	Q2301	Q2302	Q2303	Q2304	Q2305	Q2306	Q2307
B	-0.02	19.60	0.02	14.16	0.00	0.00	-0.03
C	5.05	-0.02	19.60	13.57	-0.02	0.00	0.00
E	0.00	13.57	0.00	14.16	-0.04	-0.04	0.00

	Q2308	Q2309	Q882	Q883	Q2451	Q2452
B	0.70	0.00	6.49	4.36	4.54	4.54
C	0.00	5.04	0.00	0.05	9.02	9.02
E	0.00	0.00	6.47	0.00	3.90	3.90

D - BOARD - TNP2AH059

IC1501	
1	10.80
2	0.00
3	0.00
4	0.00
5	2.40
6	2.40
7	1.40
8	12.00

IC451	
1	0.00
2	17.30
3	-17.00
4	-18.50
5	-0.10
6	17.10
7	0.00

IC701	
1	0.20
2	5.30
3	4.70
4	0.00
5	1.60
6	0.70
7	9.50
8	12.00

IC7001			
1	0.00	10	19.30
2	0.00	11	0.00
3	-19.40	12	-20.50
4	-20.50	13	0.00
5	19.30	14	0.00
6	-0.30	15	-0.20
7	-0.30	16	-0.20
8	-20.40	17	-20.50
9	-0.30	18	0.00

IC7002			
1	0.00	10	19.30
2	0.00	11	-0.40
3	-19.40	12	-0.40
4	-20.50	13	0.20
5	19.30	14	0.00
6	-0.10	15	-0.20
7	-0.10	16	-0.00
8	-20.40	17	-20.50
9	-0.10	18	0.00

↓IC801	
1	1.40
2	0.40
3	0.00
4	0.00
5	0.00
6	5.70
7	20.50
8	0.00
9	6.00

IC802	
1	139.40
2	18.50
3	0.00

IC805	
1	19.70
2	0.00
3	12.00

IC811	
1	19.50
2	18.50
3	↓ 0.00
4	↓ 5.90

	Q1503	Q1504	Q1505	Q406
B	9.80	12.00	6.10	-0.70
C	6.20	404.80	10.40	0.00
E	10.40	11.40	6.60	0.00

	Q501
G	5.30
D	16.50
S	0.00

	Q509	Q510	Q512
B	29.10	31.60	4.40
C	138.90	138.90	8.30
E	31.60	31.10	3.80

	Q513	Q551	Q606
B	0.30	-0.20	0.00
C	5.30	-98.90	9.80
E	0.00	0.00	0.00

	Q701
G	9.50
D	27.00
S	0.00

	Q7006	Q7007	Q7060	Q7061
B	-20.50	-20.50	19.30	-20.50
C	-19.40	-19.40	0.00	19.30
E	-20.50	-20.50	19.50	-20.70

	Q801
G	5.50
S	0.01
D	43.30

	Q802	Q803	Q854
B	0.70	20.50	138.90
C	0.20	0.00	0.00
E	0.00	20.50	139.20

LG - BOARD - TNP2AA160

IC880
1 .... 18.30
2 ..... 0.00
3 .... 12.00

	Q331	Q373	Q374	Q375	Q934	Q935	Q936	Q937
B	4.10	12.00	172.10	171.00	0.00	0.00	0.70	0.00
C	11.60	170.70	218.80	0.40	0.00	19.30	19.30	0.00
E	3.80	11.60	171.60	171.60	0.70	0.00	0.40	0.40

	Q938	Q941	Q951	Q952	Q953	Q955	Q956
B	137.90	1.00	-0.90	-1.10	-1.10	129.70	9.60
C	130.10	9.00	19.30	19.30	19.30	70.00	70.00
E	138.60	0.30	0.00	0.00	0.00	130.10	9.00

LB - BOARD - TNP2AA161

	Q361	Q362	Q363	Q364	Q365	Q366	Q368	Q393	Q394
B	5.20	4.50	3.90	3.90	5.90	5.10	0.00	12.00	176.10
C	12.00	12.00	11.50	0.00	12.00	12.00	0.00	174.80	218.00
E	4.50	3.90	3.70	3.50	5.30	4.50	0.40	11.60	175.70

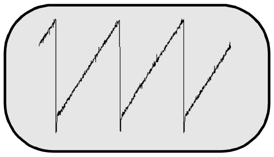
	Q395	Q959	Q960	Q961	Q964	Q965	Q966	Q967	Q968
B	174.60	129.40	9.60	137.90	1.00	0.00	0.00	0.70	0.00
C	0.40	71.00	71.00	130.00	9.00	0.00	19.30	19.30	0.00
E	175.40	130.00	9.10	138.50	0.40	0.70	0.00	0.40	0.40

LR - BOARD - TNP2AA162

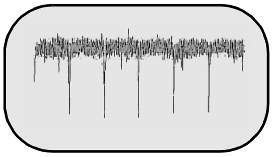
	Q301	Q302	Q303	Q353	Q354	Q355	Q901
B	0.00	0.60	0.60	12.00	176.30	175.00	137.90
C	215.00	0.00	0.00	174.70	218.30	0.00	130.10
E	0.00	0.00	0.00	11.50	175.90	175.60	138.50

	Q903	Q904	Q905	Q906	Q907	Q957	Q958
B	0.10	1.00	0.10	0.70	0.00	129.40	9.43
C	0.00	8.90	19.30	19.30	0.00	69.60	69.60
E	0.80	0.30	0.00	0.40	0.40	130.00	8.86

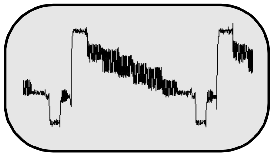
A-Board TNP2AH058



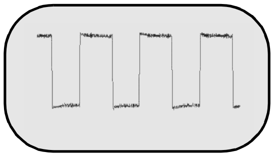
① **2.04 Vp-p**
A4 PIN 1 (V-SAW)



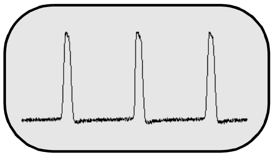
② **.292 Vp-p**
A4 PIN 4 (EHT ADJ)



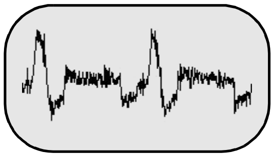
③ **1.08 Vp-p**
A14 PIN 13 (MAIN VIDEO)



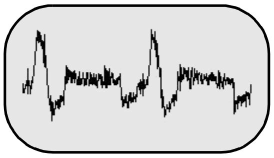
④ **3.56Vp-p**
A2 PIN 3 (H-DRV)



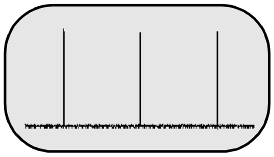
⑤ **5.65 Vp-p**
A2 PIN 5 (FBP)



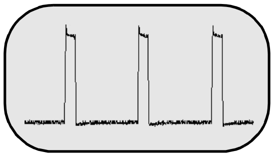
⑥ **0.178 Vp-p**
A2 PIN 11 (SOS3 CONV)



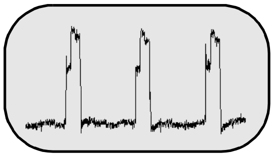
⑦ **0.176 Vp-p**
A2 PIN 15 (SOS)



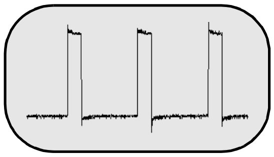
⑧ **3.36 Vp-p**
A3 PIN 9 (VD TO CONV)



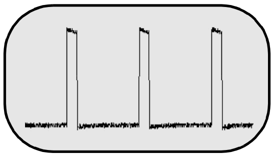
⑨ **3.36 Vp-p**
A3 PIN 11 (FBP TO CONV)



⑩ **0.472 Vp-p**
A3 PIN 13 (H-SYNC)

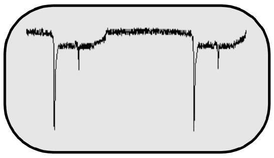


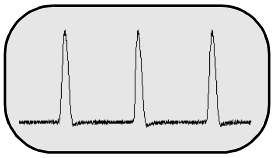
⑪ **3.52 Vp-p**
A3 PIN 15 (HBLK)

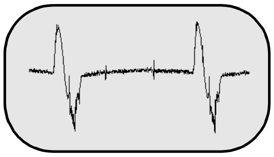


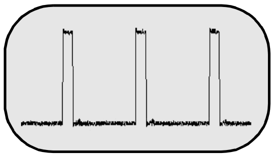
⑫ **3.6 Vp-p**
A3 PIN 16 (EW)

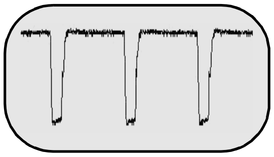
D-Board TNP2AH059

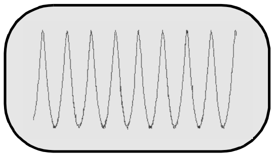

⑬ **12.6 Vp-p**
Q551-B

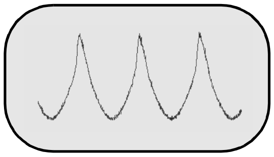

⑭ **1.56 kVp-p**
Q551-C

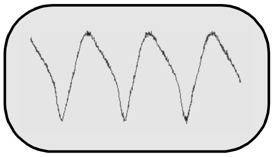

⑮ **0.65 Vp-p**
IC701 PIN 3

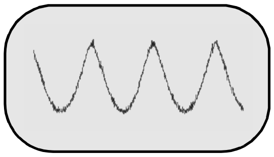

⑯ **3.60Vp-p**
IC701 PIN 6

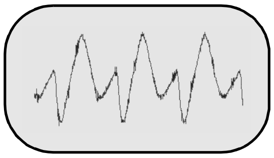

⑰ **13.4 Vp-p**
IC701 PIN 7

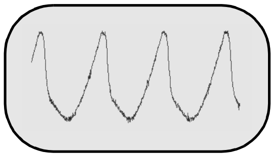

⑱ **2.28 Vp-p**
D23 PIN 10 (DAF)

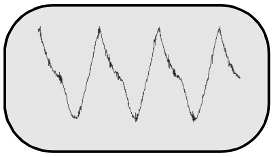

⑲ **2.02 Vp-p**
D22 PIN 2 BV


⑳ **2.04 Vp-p**
D22 PIN 3 (BH)

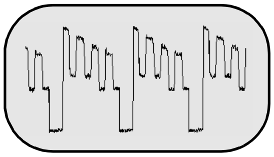

㉑ **1.44 Vp-p**
D22 PIN 4 (GV)

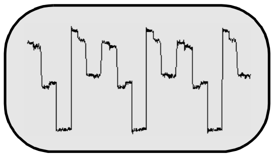

㉒ **.824 Vp-p**
D22 PIN 5 (GH)

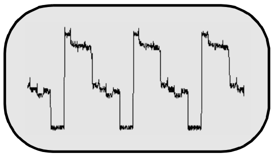

㉓ **1.94 Vp-p**
D22 PIN 6 (RV)

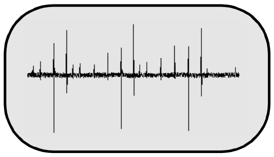

㉔ **1.17 Vp-p**
D22 PIN 7 (RH)

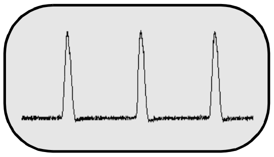
LG-Board TNP2AA160


㉕ **6.08 Vp-p**
TP17 (BLUE SIGNAL)

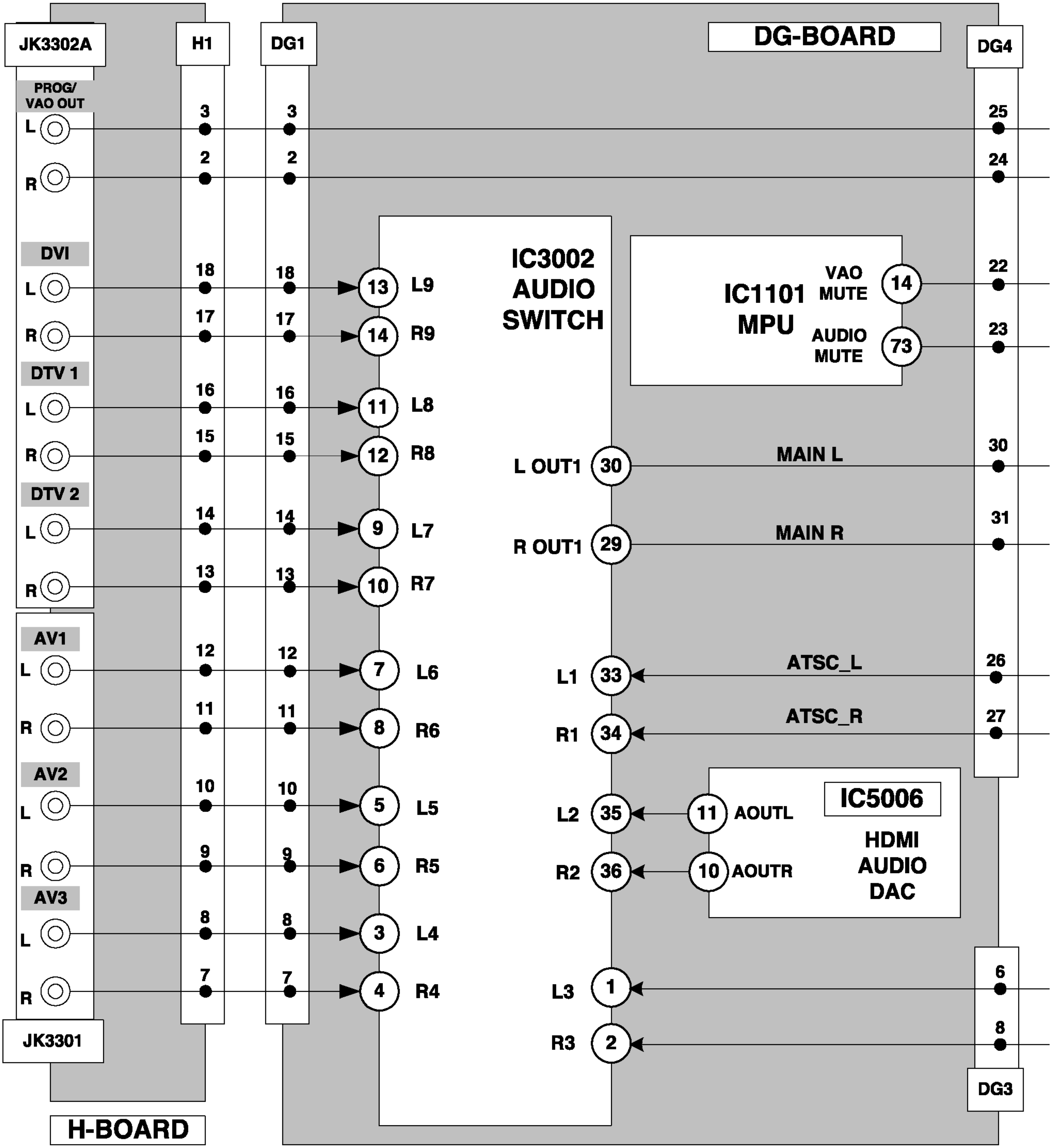

㉖ **5.60 Vp-p**
TP18 (RED SIGNAL)


㉗ **6.08 Vp-p**
TP19 (GREEN SIGNAL)


㉘ **2.74 Vp-p**
TP12 (VM SIGNAL)

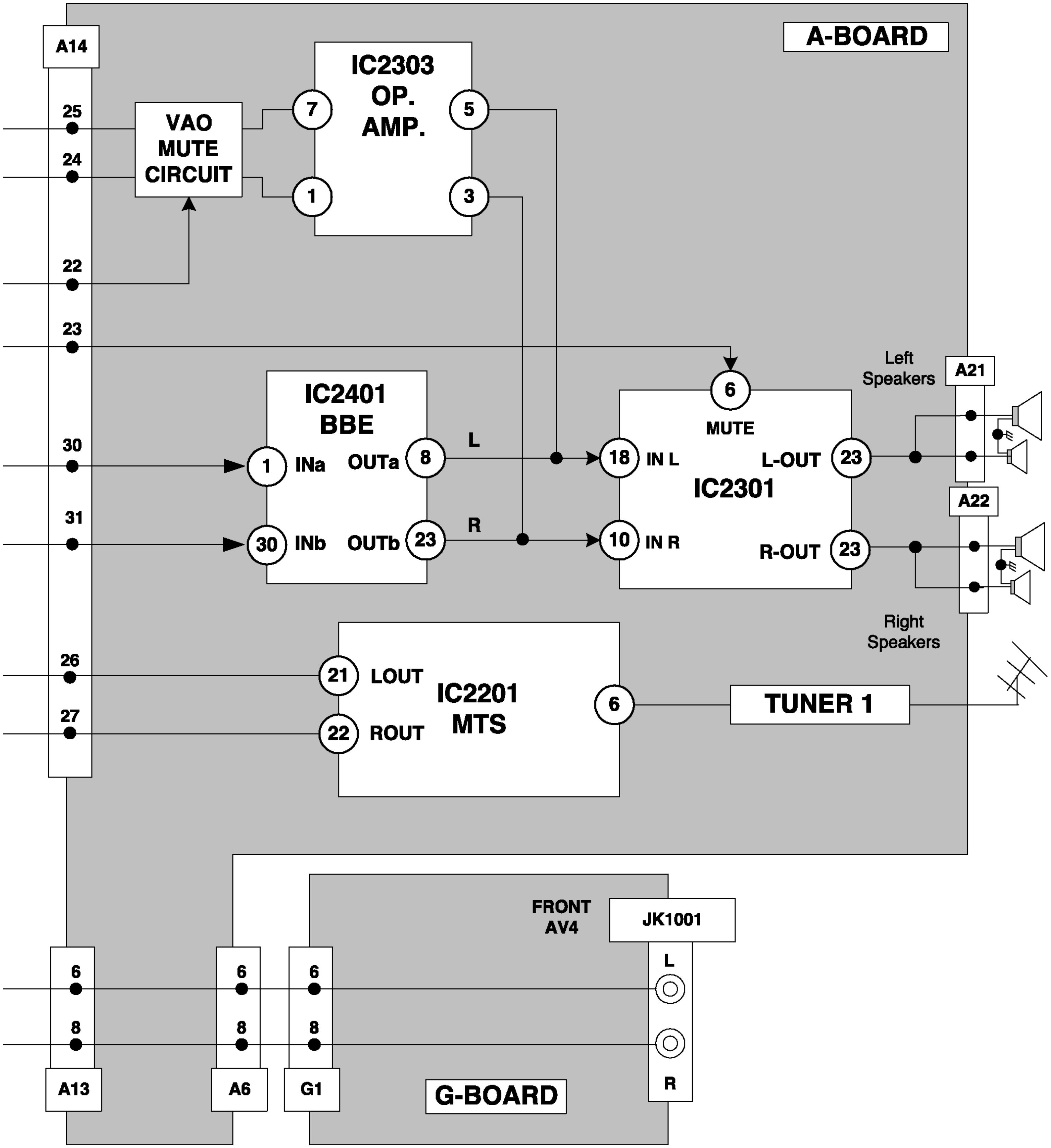

㉙ **28.4 Vp-p**
TP22 (HEATER)

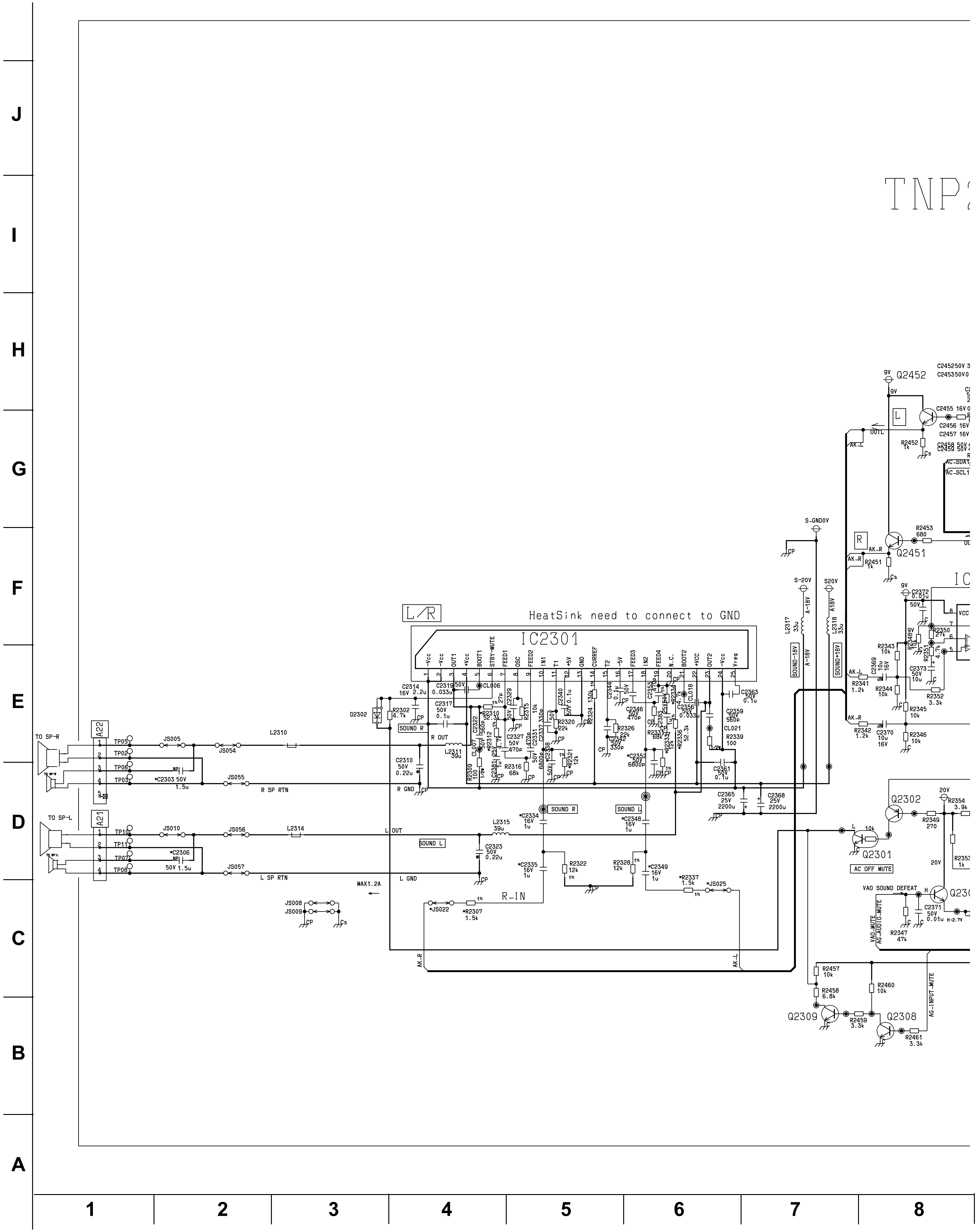
Audio signal path block diagram

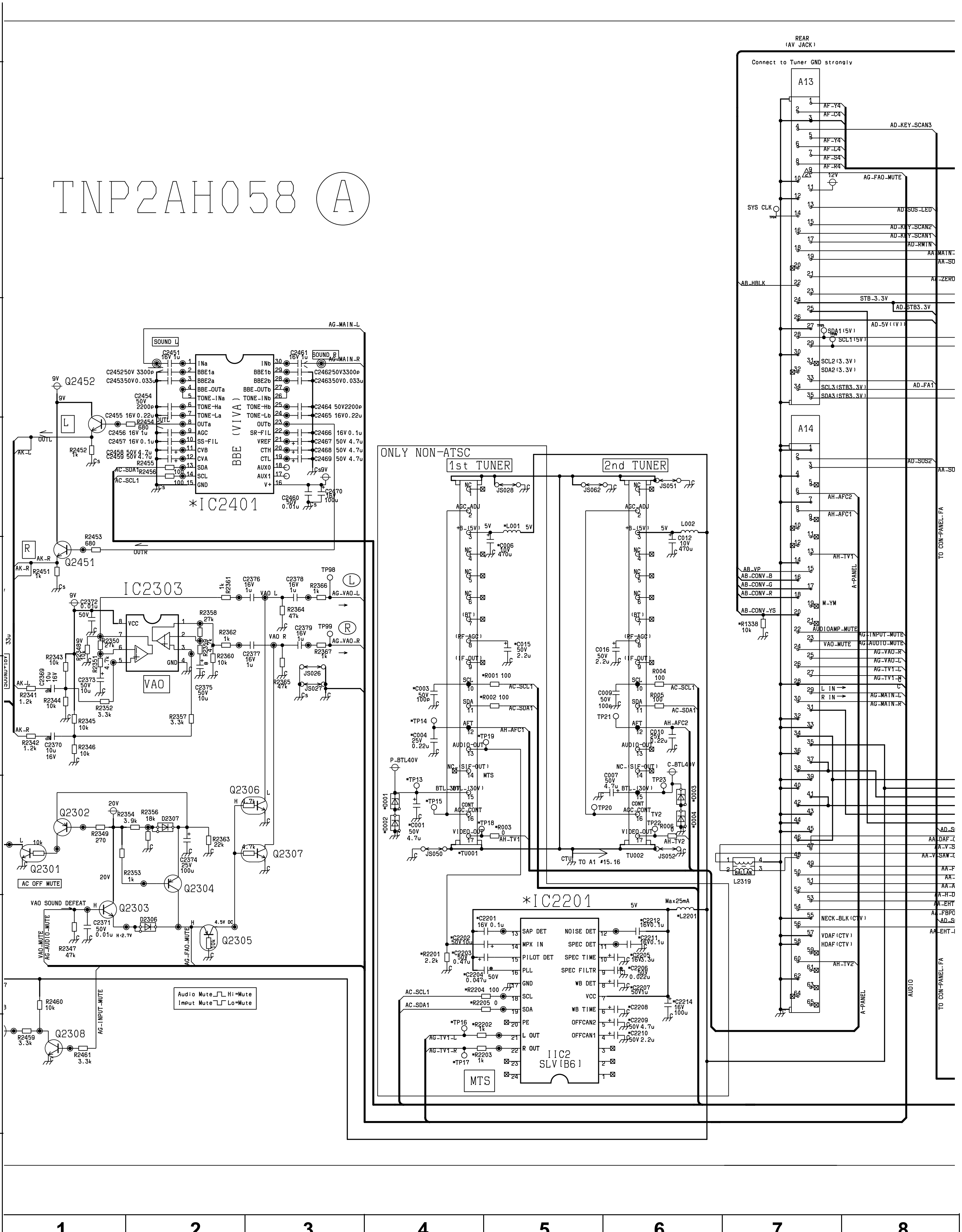


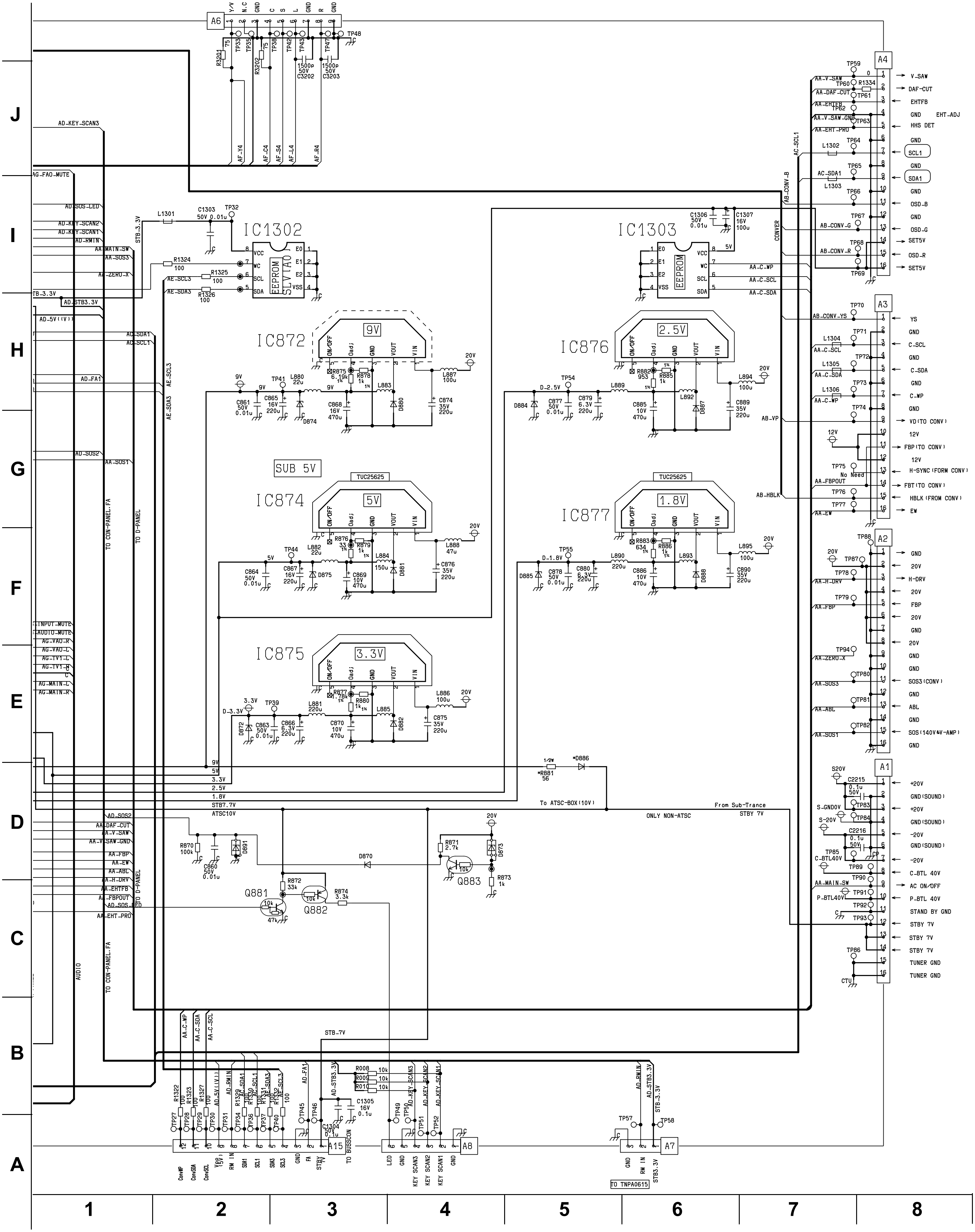
DG-BOARD
H-BOARD
JK3302A
H1
DG1
DG4
PROG/
VAO OUT
L
R
3
2
25
24
DVI
18
17
DTV 1
16
15
DTV 2
14
13
AV1
12
11
AV2
10
9
AV3
8
7
JK3301
IC3002
AUDIO
SWITCH
13 L9
14 R9
11 L8
12 R8
9 L7
10 R7
7 L6
8 R6
5 L5
6 R5
3 L4
4 R4
L OUT1 30
R OUT1 29
L1 33
R1 34
L2 35
R2 36
L3 1
R3 2
IC1101
MPU
VAO
MUTE
14
AUDIO
MUTE
73
22
23
MAIN L
30
MAIN R
31
ATSC_L
26
ATSC_R
27
IC5006
HDMI
AUDIO
DAC
11 AOUTL
10 AOUTR
6
8
DG3

Audio signal path block diagram


A-BOARD
A14
25
24
22
23
30
31
26
27
VAO MUTE CIRCUIT
IC2303 OP. AMP.
7
1
5
3
IC2401 BBE
1
INa
OUTa
8
30
INb
OUTb
23
L
R
IC2301
6
MUTE
18
IN L
10
IN R
L-OUT
23
R-OUT
23
Left Speakers
A21
A22
Right Speakers
IC2201 MTS
21
LOUT
22
ROUT
6
TUNER 1
FRONT AV4
JK1001
L
R
6
8
6
8
6
8
A13
A6
G1
G-BOARD

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
TNP2
L/R
HeatSink need to connect to GND
IC2301
-Vcc
-Vcc
OUT1
+Vcc
BOOT1
STBY-MUTE
FEED1
OSC
FEED2
IN1
T1
+5V
GND
CURREF
T2
-5V
FEED3
FEED4
IN2
N.C.
BOOT2
+VCC
OUT2
-Vcc
Vreg
TO SP-R
TO SP-L
A22
A21
TP05
TP02
TP06
TP03
TP10
TP11
TP07
TP08
JS005
JS054
JS055
JS010
JS056
JS057
JS008
JS009
*JS022
*JS025
L2310
L2311 39u
L2314
L2315 39u
L2317 33u
L2318 33u
*C2303 50V 1.5u
*C2306 50V 1.5u
C2310 50V 0.22u
C2323 50V 0.22u
D2302
R2302 4.7k
C2314 16V 2.2u
C2319 50V 0.033u
CL006
C2317 50V 0.1u
R OUT
R GND
L OUT
L GND
R SP RTN
L SP RTN
SOUND R
SOUND L
MAX1.2A
R-IN
*R2307 1.5k
*C2334 16V 1u
*C2335 16V 1u
R2322 12k
R2328 12k
*C2348 16V 1u
*C2349 16V 1u
*R2337 1.5k
R2316 68k
R2309 100
R2320 22k
R2321 12k
R2324 130k
R2326 22k
R2336 52.3k
R2339 100
CL007
CL018
CL021
C2359 50V 560p
C2363 50V 0.1u
C2361 50V 0.1u
C2365 25V 2200u
C2368 25V 2200u
AK-R
AK-L
S-GNDOV
S-20V
S20V
A-18V
A18V
SOUND-18V
SOUND+18V
Q2452
Q2451
Q2302
Q2301
Q2309
Q2308
9V
20V
R2452 1k
R2453 680
R2451 1k
OUTL
AC-SDA1
AC-SCL1
C2455 16V
C2456 16V
C2457 16V
C2372 0.01u 50V
R2343 10k
R2350 27k
R2351 4.7k
R2489 10k
C2369 10u 16V
C2373 50V 10u
R2341 1.2k
R2344 10k
R2352 3.3k
R2345 10k
R2342 1.2k
C2370 10u 16V
R2346 10k
R2354 3.9k
R2349 270
R2353 1k
AC OFF MUTE
VAO SOUND DEFEAT
VAO-MUTE
AG-AUDIO-MUTE
C2371 50V 0.01u
R2347 47k
R2457 10k
R2458 6.8k
R2460 10k
R2459 3.3k
R2461 3.3k
AG-INPUT-MUTE
CP
Cs

TNP2AH058 Ⓐ
REAR (AV JACK)
Connect to Tuner GND strongly
A13
A14
SOUND L
SOUND R
AG-MAIN-L
AG-MAIN-R
BBE (VIVA)
*IC2401
Q2452
Q2451
IC2303
VAO
AG-VAO-L
AG-VAO-R
TP98
TP99
Q2302
Q2301
Q2303
Q2304
Q2305
Q2306
Q2307
Q2308
AC OFF MUTE
VAO SOUND DEFEAT
AG-AUDIO-MUTE
AG-FAO-MUTE
AG-INPUT-MUTE
Audio Mute Hi=Mute
Imput Mute Lo=Mute
ONLY NON-ATSC
1st TUNER
2nd TUNER
*TU001
TU002
TO A1 #15.16
*IC2201
IIC2 SLV[B6]
MTS
SAP DET
MPX IN
PILOT DET
PLL
GND
SCL
SDA
PE
L OUT
R OUT
NOISE DET
SPEC DET
SPEC TIME
SPEC FILTR
WB DET
VCC
WB TIME
OFFCAN2
OFFCAN1
BALLAN
L2319
AD-KEY-SCAN3
SYS CLK
AB-HBLK
STB-3.3V
AD-STB3.3V
AH-AFC2
AH-AFC1
AH-TV1
AH-TV2
AB-VP
AB-CONV-B
AB-CONV-G
AB-CONV-R
AB-CONV-YS
AUDIOAMP-MUTE
VAO-MUTE
NECK-BLK(CTV)
VDAF(CTV)
HDAF(CTV)
A-PANEL
AUDIO
TO CON-PANEL.FA
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


A6
Y/V
N.C
GND
C
S
L
GND
R
GND
TP33
TP35
TP38
TP42
TP43
TP47
TP48
R3201
75
R3202
75
1500p
50V
C3202
C3203
AF-Y4
AF-C4
AF-S4
AF-L4
AF-R4
AD-KEY-SCAN3
AG-FAO-MUTE
AD-SOS-LED
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AA-MAIN-SW
AA-SOS3
AA-ZERO-X
STB-3.3V
AD-STB3.3V
AD-5V(IV)
AD-SDA1
AD-SCL1
AD-FA1
AD-SOS2
AA-SOS1
L1301
C1303
50V 0.01u
TP32
IC1302
EEPROM
SLVIA0
VCC
WC
SCL
VSS
E0
E1
E2
SDA
R1324
100
R1325
100
R1326
100
AE-SCL3
AE-SDA3
IC1303
C1306
50V
0.01u
C1307
16V
100u
5V
AA-C-WP
AA-C-SCL
AA-C-SDA
CONVER
AB-CONV-B
AC-SCL1
A4
TP59
TP60
R1334
TP61
TP62
TP63
TP64
L1302
TP65
AC-SDA1
L1303
TP66
TP67
AB-CONV-G
TP68
AB-CONV-R
TP69
AA-V-SAW
AA-DAF-CUT
AA-EHTFB
AA-V-SAW-GND
AA-EHT-PRO
V-SAW
DAF-CUT
EHTFB
GND EHT-ADJ
HHS DET
GND
SCL1
SDA1
OSD-B
OSD-G
SET5V
OSD-R
IC872
9V
ON/OFF
Oadj
GND
VOUT
VIN
20V
R875
6.19k
R878
1k
L887
100u
TP41
L880
22u
L883
C861
50V
0.01u
C865
16V
220u
C868
16V
470u
D874
D880
C874
35V
220u
IC876
2.5V
TP54
D-2.5V
R882
953
R885
1k
L889
L892
L894
100u
C877
50V
0.01u
C879
6.3V
220u
C885
10V
470u
C889
35V
220u
D884
D887
A3
TP70
AB-CONV-YS
YS
TP71
L1304
AA-C-SCL
C-SCL
TP72
L1305
AA-C-SDA
C-SDA
TP73
L1306
AA-C-WP
C-WP
TP74
AB-VP
VD(TO CONV)
12V
FBP(TO CONV)
TP75
No Need
H-SYNC(FORM CONV)
AA-FBPOUT
FBT(TO CONV)
TP76
AB-HBLK
HBLK(FROM CONV)
TP77
AA-EW
EW
SUB 5V
TUC25625
IC874
5V
R876
33
R879
1k
L888
47u
TP44
L882
22u
L884
150u
C864
50V
0.01u
C867
16V
220u
D875
C869
10V
470u
D881
C876
35V
220u
IC877
1.8V
TP55
D-1.8V
R883
634
R886
1k
L890
220u
L893
L895
100u
C878
50V
0.01u
C880
6.3V
220u
C886
10V
470u
C890
35V
220u
D885
D888
A2
TP88
TP87
TP78
AA-H-DRV
H-DRV
TP79
AA-FBP
FBP
TP94
AA-ZERO-X
TP80
AA-SOS3
SOS3(CONV)
TP81
AA-ABL
ABL
TP82
AA-SOS1
SOS(140V&V-AMP)
AG-INPUT-MUTE
AG-AUDIO-MUTE
AG-VAO-R
AG-VAO-L
AG-TV1-L
AG-TV1-R
AG-MAIN-L
AG-MAIN-R
IC875
3.3V
R877
1.78k
R880
1k
L886
100u
TP39
D-3.3V
L881
220u
L885
C863
50V
0.01u
C866
6.3V
220u
C870
10V
470u
D872
D882
C875
35V
220u
TO CON-PANEL.FA
TO D-PANEL
9V
5V
3.3V
2.5V
1.8V
STB7.7V
ATSC10V
1/2W
*R881
56
*D886
To ATSC-BOX(10V)
ONLY NON-ATSC
From Sub-Trance
STBY 7V
A1
S20V
C2215
0.1u
50V
+20V
GND(SOUND)
S-GND0V
TP83
TP84
S-20V
C2216
-20V
TP85
C-BTL40V
TP89
C-BTL 40V
AA-MAIN-SW
TP90
AC ON/OFF
P-BTL40V
TP91
P-BTL 40V
TP92
STAND BY GND
TP93
STBY 7V
TP86
TUNER GND
CTU
AD-SOS2
AA-DAF-CUT
AA-V-SAW
AA-V-SAW-GND
AA-FBP
AA-EW
AA-ABL
AA-H-DRV
AA-EHTFB
AA-FBPOUT
AD-SOS-LED
AA-EHT-PRO
R870
100k
C860
50V
0.01u
D891
D870
20V
R871
2.7k
D873
Q883
R873
1k
R872
33k
Q881
10k
47k
Q882
R874
3.3k
AUDIO
AA-C-WP
AA-C-SDA
AA-C-SCL
STB-7V
R1322
100
R1323
100
R1327
100
AD-5V(IV)
AD-RMIN
AD-SDA1
AD-SCL1
R1329
R1330
R1331
R1332
AE-SDA3
AE-SCL3
AD-FA1
AD-STB3.3V
C1305
16V
0.1u
C1304
50V
0.1u
R008
R009
R010
10k
AD-KEY-SCAN3
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AD-STB3.3V
STB-3.3V
TP27
TP28
TP29
TP30
TP31
TP34
TP36
TP37
TP40
TP45
TP46
TP49
TP50
TP51
TP52
TP57
TP58
A15
TO BUSSCON
A8
A7
ConvWP
ConvSDA
ConvSCL
Vcc 5V
RM IN
SDA1
SCL1
SDA3
SCL3
GND
FA
STBY
LED
GND
KEY SCAN3
KEY SCAN2
KEY SCAN1
GND
GND
RM IN
STB3.3V
TO TNPA0615
J
I
H
G
F
E
D
C
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A
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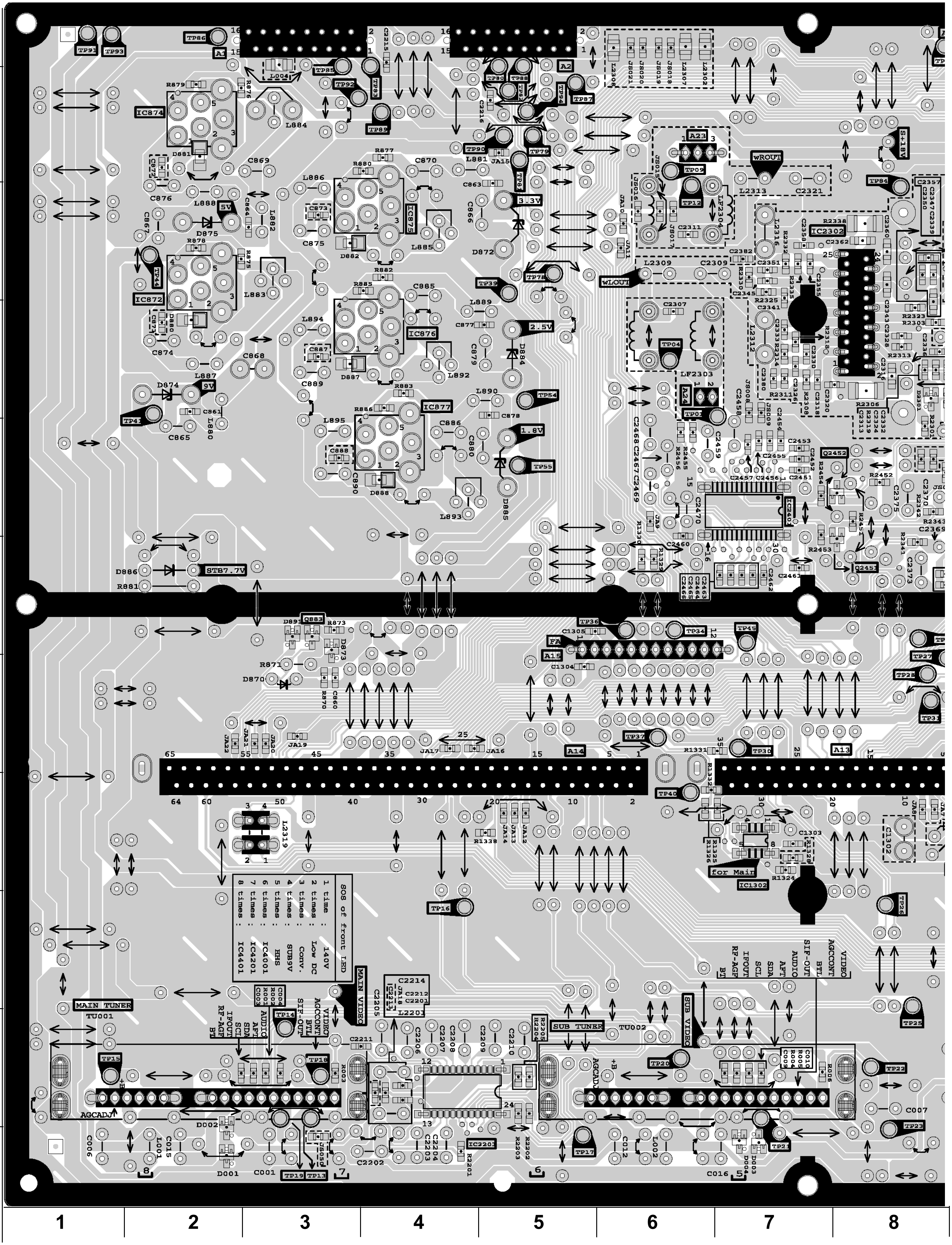
J
I
H
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A
1
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4
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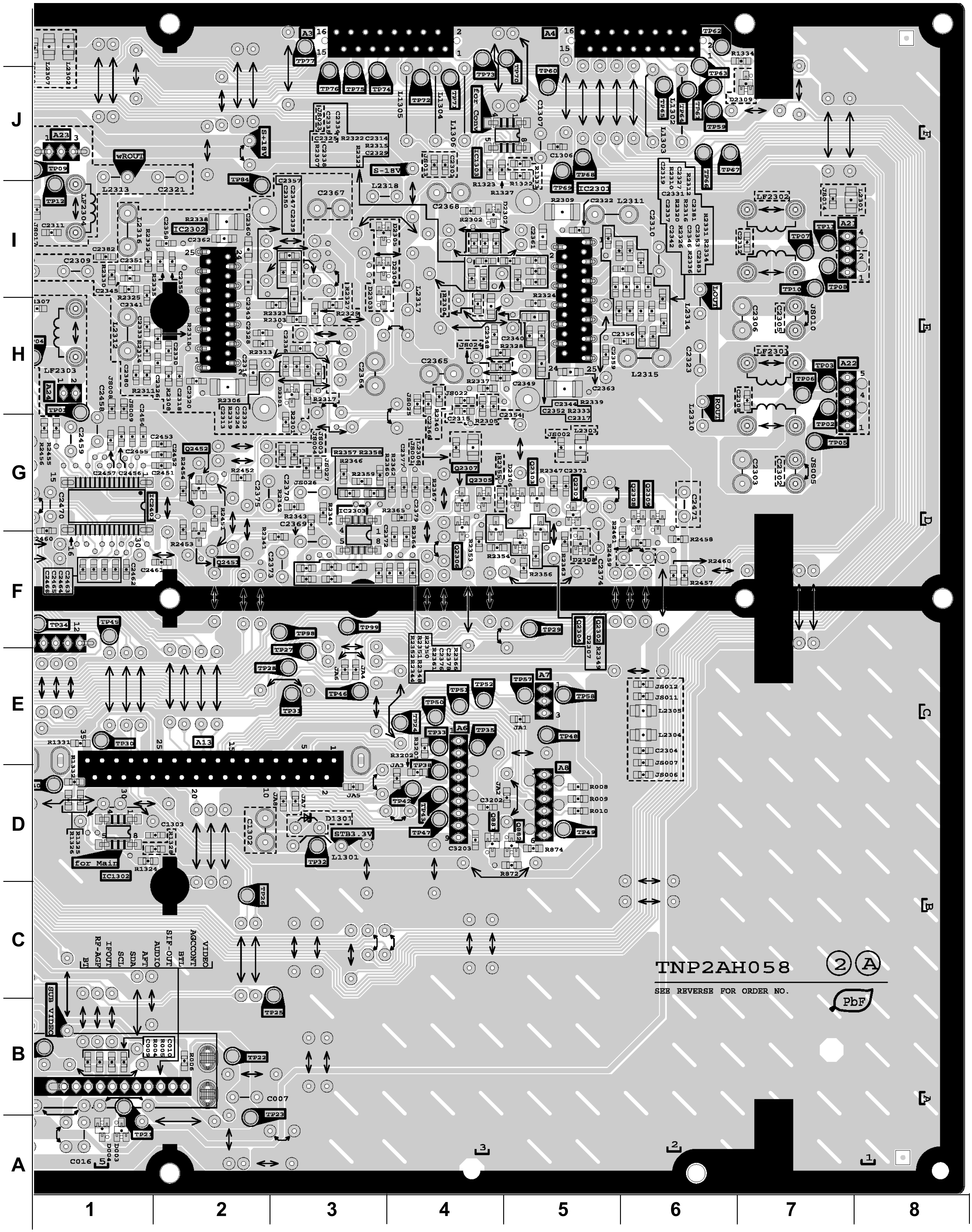
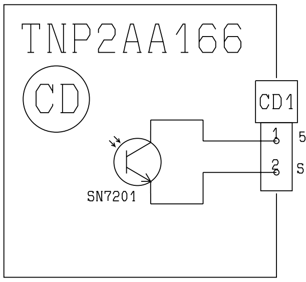
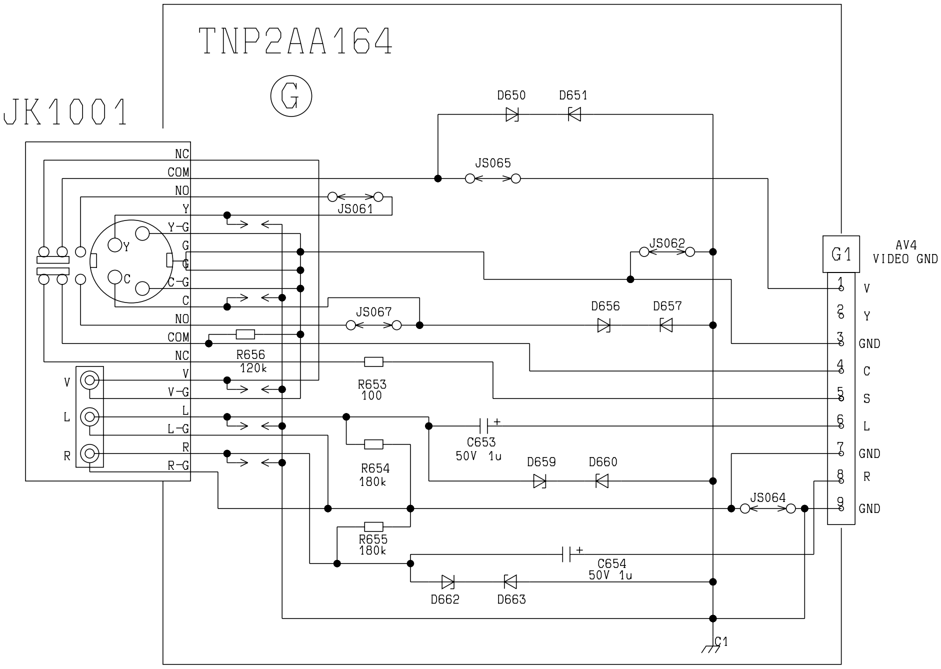
6
7
8
IC874
IC872
IC875
IC876
IC877
IC2302
IC2401
IC1302
IC2201
TP91
TP93
TP86
TP85
TP92
TP83
TP89
TP80
TP88
TP82
TP94
TP87
TP90
TP79
TP81
TP78
TP39
TP54
TP55
TP44
TP41
TP09
TP12
TP04
TP01
TP84
TP36
TP34
TP45
TP37
TP30
TP40
TP16
TP14
TP15
TP18
TP19
TP13
TP20
TP17
TP21
TP22
TP23
TP25
TP26
TP27
TP28
A1
A2
A23
A24
A14
A15
A13
5V
9V
3.3V
2.5V
1.8V
STB7.7V
S+18V
wROUT
wLOUT
Q883
Q2452
Q2451
SOS of front LED
1 time : 140V
2 times : Low DC
3 times : Conv.
4 times : SUB9V
5 times : HHS
6 times : IC4001
7 times : IC4201
8 times : IC4401
MAIN TUNER
TU001
MAIN VIDEO
SUB TUNER
TU002
SUB VIDEO
for Main
AGCADJ
+B
IFOUT
RF-AGC
BT
SCL
SDA
AFT
AUDIO
SIF-OUT
BTL
AGCCONT
VIDEO
L2319
LF2303
L2304
L2309
L2313
C2321
C2309
L2316
L2312

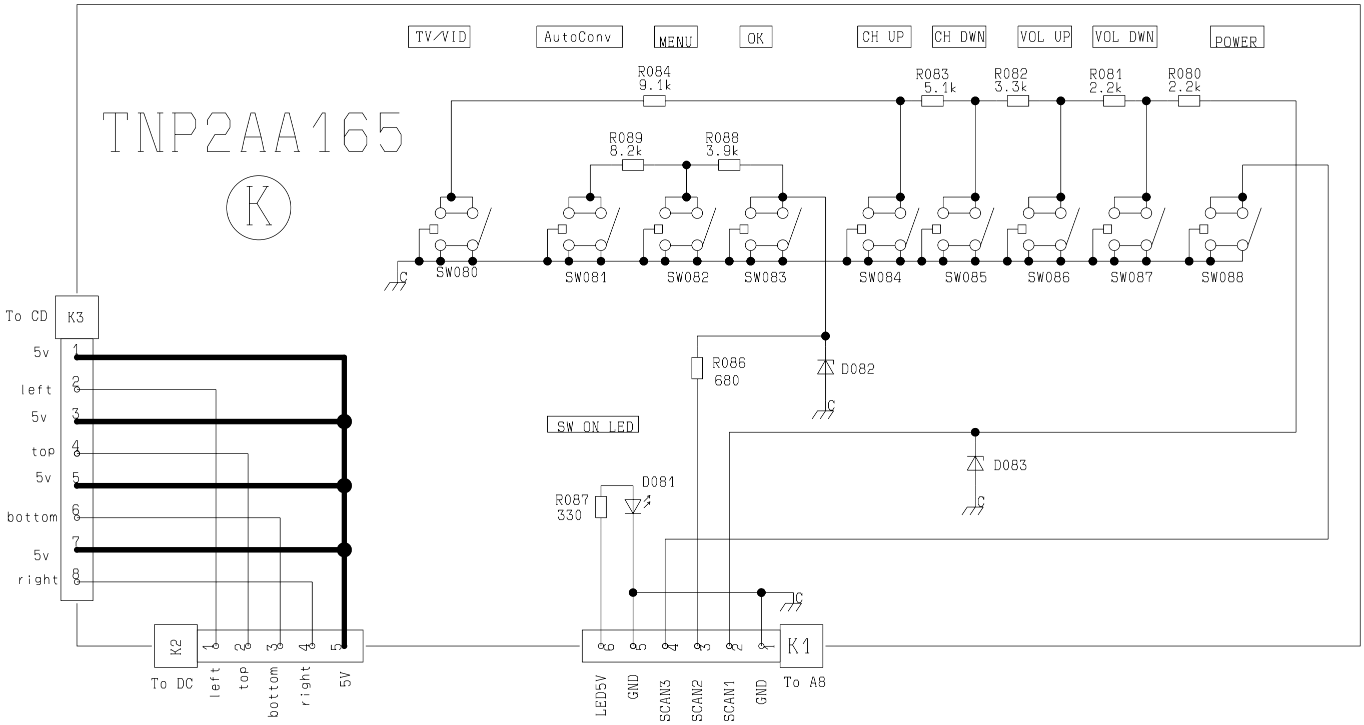

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
A3
A4
A6
A7
A8
A13
A21
A22
A23
A24
IC2301
IC2302
IC2303
IC2401
IC1302
IC1303
S+18V
S-18V
wROUT
LOUT
ROUT
for Conv
for Main
STB3.3V
D1301
LF2302
LF2303
LF2301
LF2304
SUB VIDEO
VIDEO
AGCCONT
BTL
SIF-OUT
AUDIO
AFT
SDA
SCL
IFOUT
RF-AGC
BT
TNP2AH058
2
A
SEE REVERSE FOR ORDER NO.
PbF



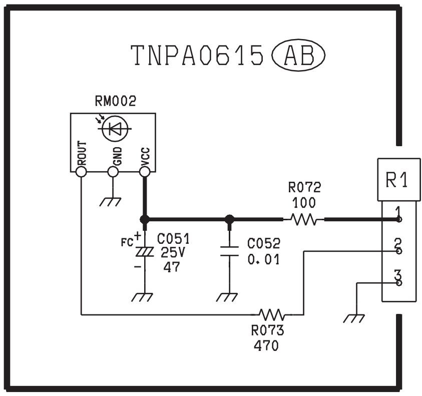
TNP2AA166
CD
CD1
1 5V
2 Sensor
SN7201



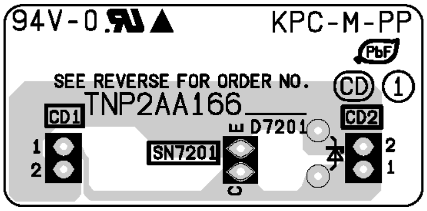
TNP2AA164
G
JK1001
NC
COM
NO
Y
Y-G
G
G
C-G
C
NO
COM
NC
V
V-G
L
L-G
R
R-G
V
L
R
D650
D651
JS065
JS061
JS062
JS067
D656
D657
R656 120k
R653 100
C653 50V 1u
R654 180k
D659
D660
JS064
R655 180k
C654 50V 1u
D662
D663
C1
G1
AV4 VIDEO GND
1 V
2 Y
3 GND
4 C
5 S
6 L
7 GND
8 R
9 GND

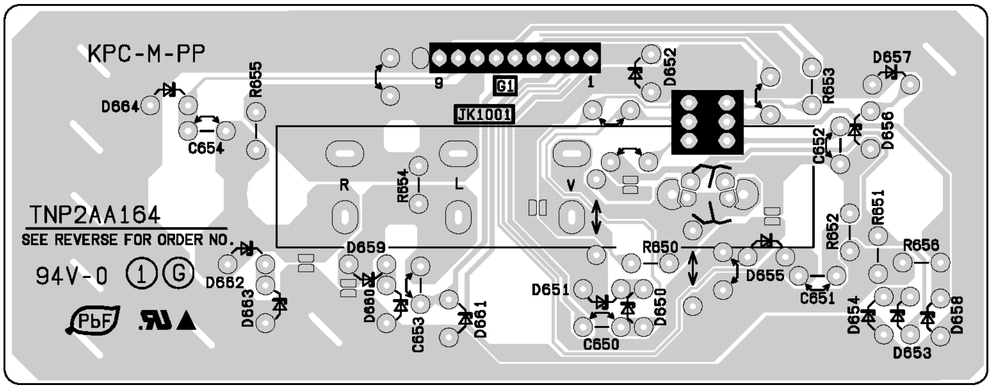


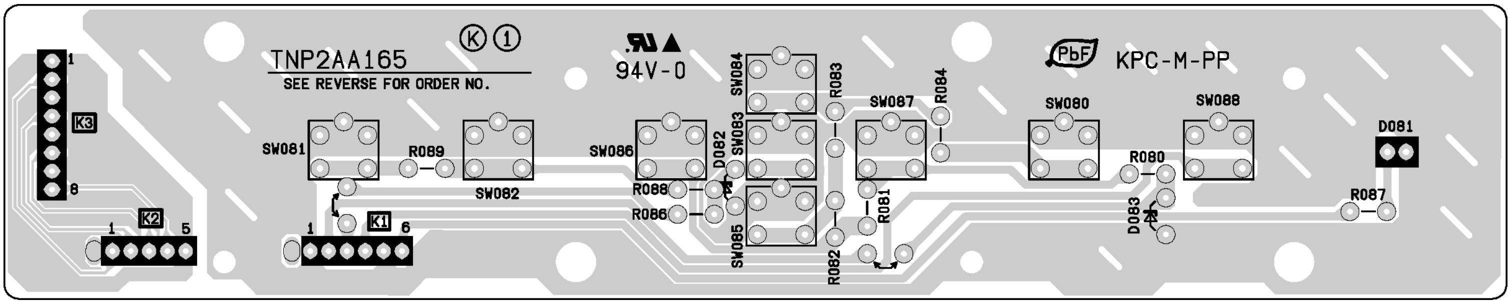
TNP2AA165
K
TV/VID
AutoConv
MENU
OK
CH UP
CH DWN
VOL UP
VOL DWN
POWER
R084 9.1k
R083 5.1k
R082 3.3k
R081 2.2k
R080 2.2k
R089 8.2k
R088 3.9k
SW080
SW081
SW082
SW083
SW084
SW085
SW086
SW087
SW088
To CD
K3
1 5v
2 left
3 5v
4 top
5 5v
6 bottom
7 5v
8 right
R086 680
D082
SW ON LED
D083
R087 330
D081
K2
To DC
1 left
2 top
3 bottom
4 right
5 5V
K1
To A8
6 LED5V
5 GND
4 KEY SCAN3
3 KEY SCAN2
2 KEY SCAN1
1 GND

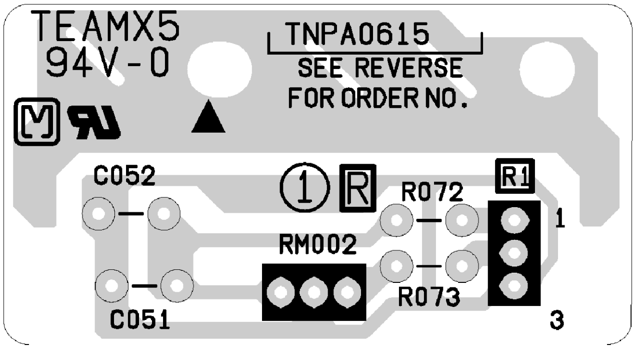


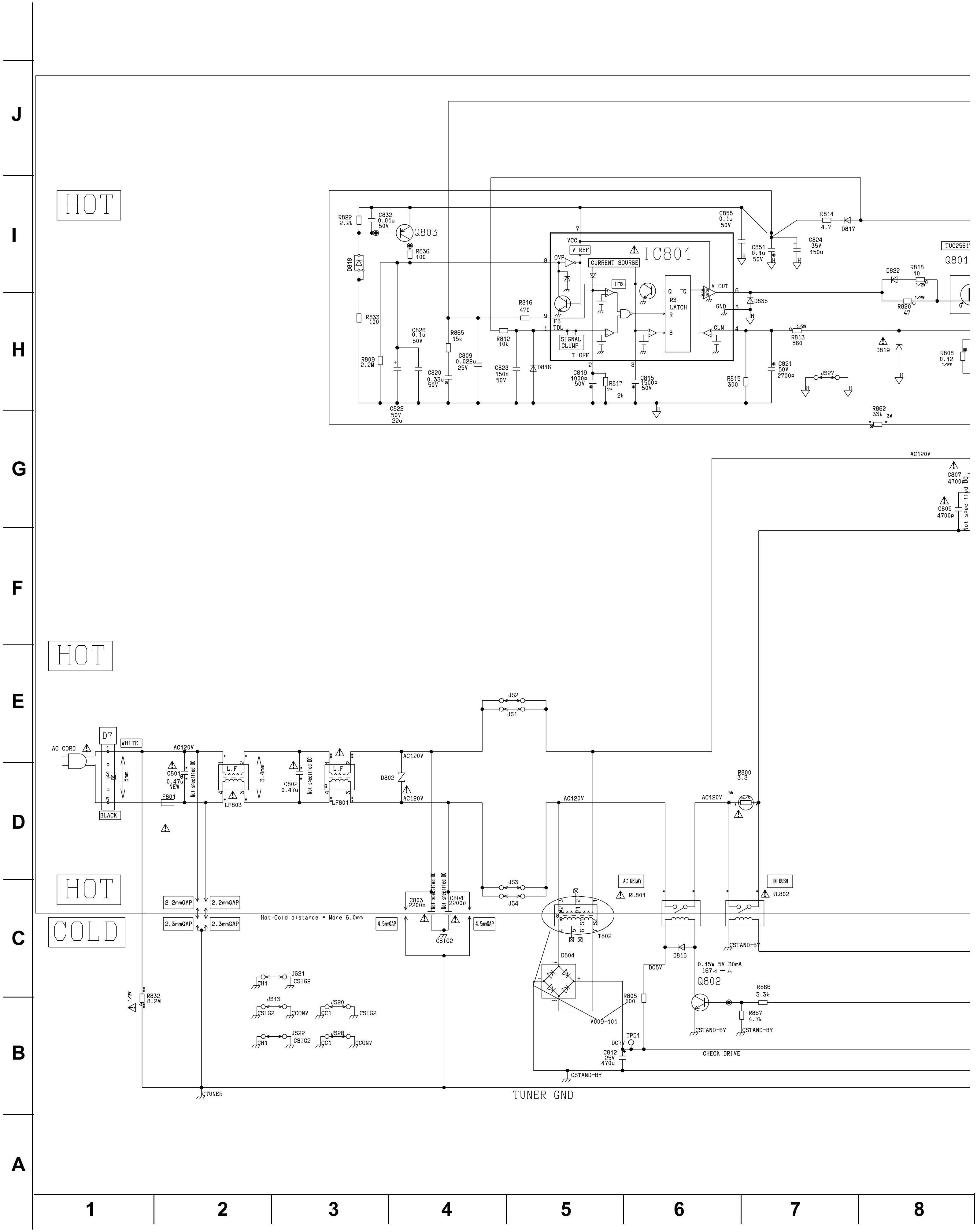
TNPA0615 AB
RM002
ROUT
GND
VCC
FC
C051 25V 47
C052 0.01
R072 100
R073 470
R1
A7
1 STB 5V
2 RM IN
3 GND

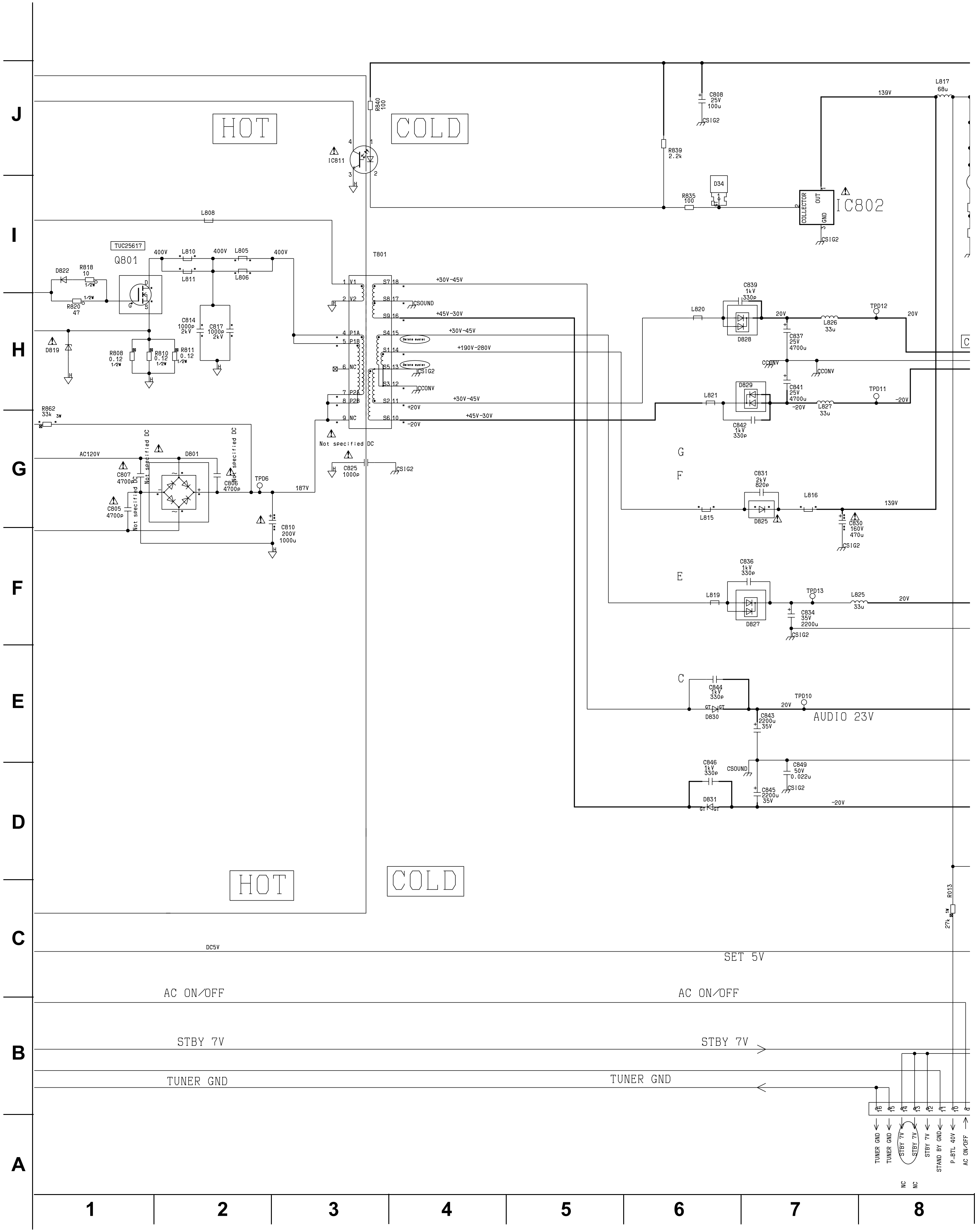

94V-0
KPC-M-PP
PbF
SEE REVERSE FOR ORDER NO.
CD
1
TNP2AA166
CD1
1
2
SN7201
E
C
D7201
CD2
2
1

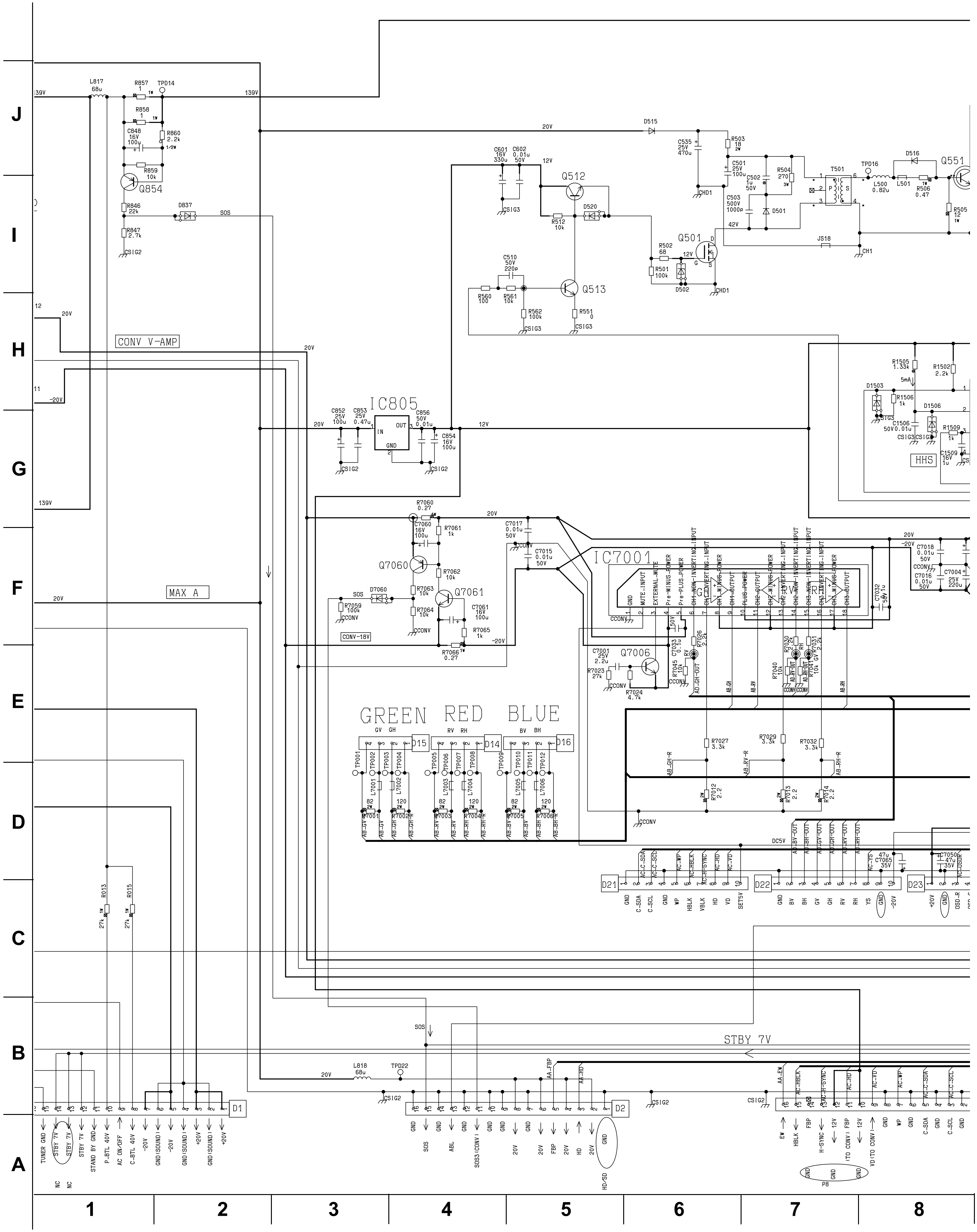

KPC-M-PP
D664
R655
C654
9
G1
1
JK1001
D652
R653
D657
D656
C652
R654
R
L
V
TNP2AA164
SEE REVERSE FOR ORDER NO.
94V-0
1
G
D662
D663
D659
D660
C653
D661
D651
C650
D650
R650
D655
C651
R652
R651
R656
D654
D653
D658
PbF

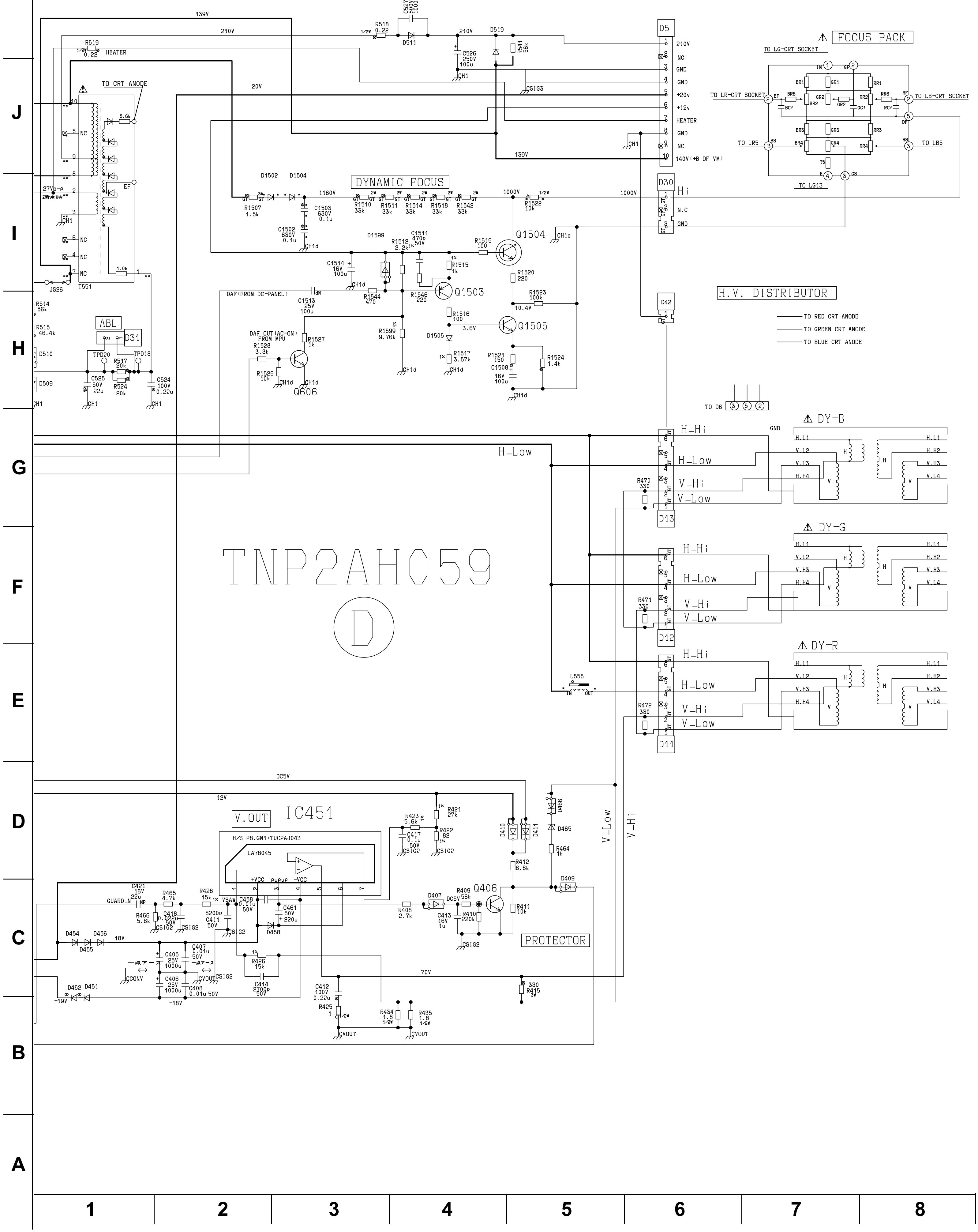

1
K3
8
K2
1
5
TNP2AA165
SEE REVERSE FOR ORDER NO.
K
1
94V-0
SW081
R089
SW082
K1
1
6
SW086
SW084
D082
SW083
SW085
R088
R086
R083
SW087
R084
R081
R082
PbF
KPC-M-PP
SW080
SW088
R080
D083
D081
R087


TEAMX5
94V-0
TNPA0615
SEE REVERSE
FOR ORDER NO.
M
C052
1
R
R072
R1
1
RM002
R073
3
C051


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
HOT
HOT
HOT
COLD
R822
2.2k
C832
0.01u
50V
Q803
R836
100
D818
R833
100
R809
2.2M
C822
50V
22u
C826
0.1u
50V
C820
0.33u
50V
R865
15k
C809
0.022u
25V
R816
470
R812
10k
C823
150p
50V
D816
IC801
VCC
V REF
OVP
CURRENT SOURSE
IFB
FB
TDL
SIGNAL
CLUMP
T OFF
RS
LATCH
V OUT
GND
CLM
C819
1000p
50V
R817
1%
2k
C815
1500p
50V
C855
0.1u
50V
C851
0.1u
50V
C824
35V
150u
R814
4.7
D817
D835
R815
300
C821
50V
2700p
JS27
R813
560
1/2W
D822
R818
10
1/2W
R820
47
1/2W
TUC2561
Q801
D819
R808
0.12
1/2W
R862
33k
3W
AC120V
C807
4700
C805
4700p
Not specified DC
AC CORD
D7
WHITE
BLACK
5mm
AC120V
C801
0.47u
NEW
Not specified DC
F801
LF803
L.F
3.4mm
C802
0.47u
Not specified DC
L.F
LF801
D802
AC120V
AC120V
JS2
JS1
JS3
JS4
AC120V
AC120V
R800
3.3
5W
AC RELAY
RL801
IN RUSH
RL802
2.2mmGAP
2.2mmGAP
2.3mmGAP
2.3mmGAP
Hot-Cold distance = More 6.0mm
C803
2200p
C804
2200p
Not specified DC
Not specified DC
4.5mmGAP
4.5mmGAP
CSIG2
T802
CSTAND-BY
D815
DC5V
0.15W 5V 30mA
167
D804
Q802
R866
3.3k
R867
4.7k
CSTAND-BY
CSTAND-BY
R805
100
V009-101
TPD1
DC7V
C812
25V
470u
CHECK DRIVE
CSTAND-BY
R832
8.2M
1/2W
JS21
CH1
CSIG2
JS13
CSIG2
CCONV
JS20
CC1
CSIG2
JS22
CH1
CSIG2
JS28
CC1
CCONV
CTUNER
TUNER GND

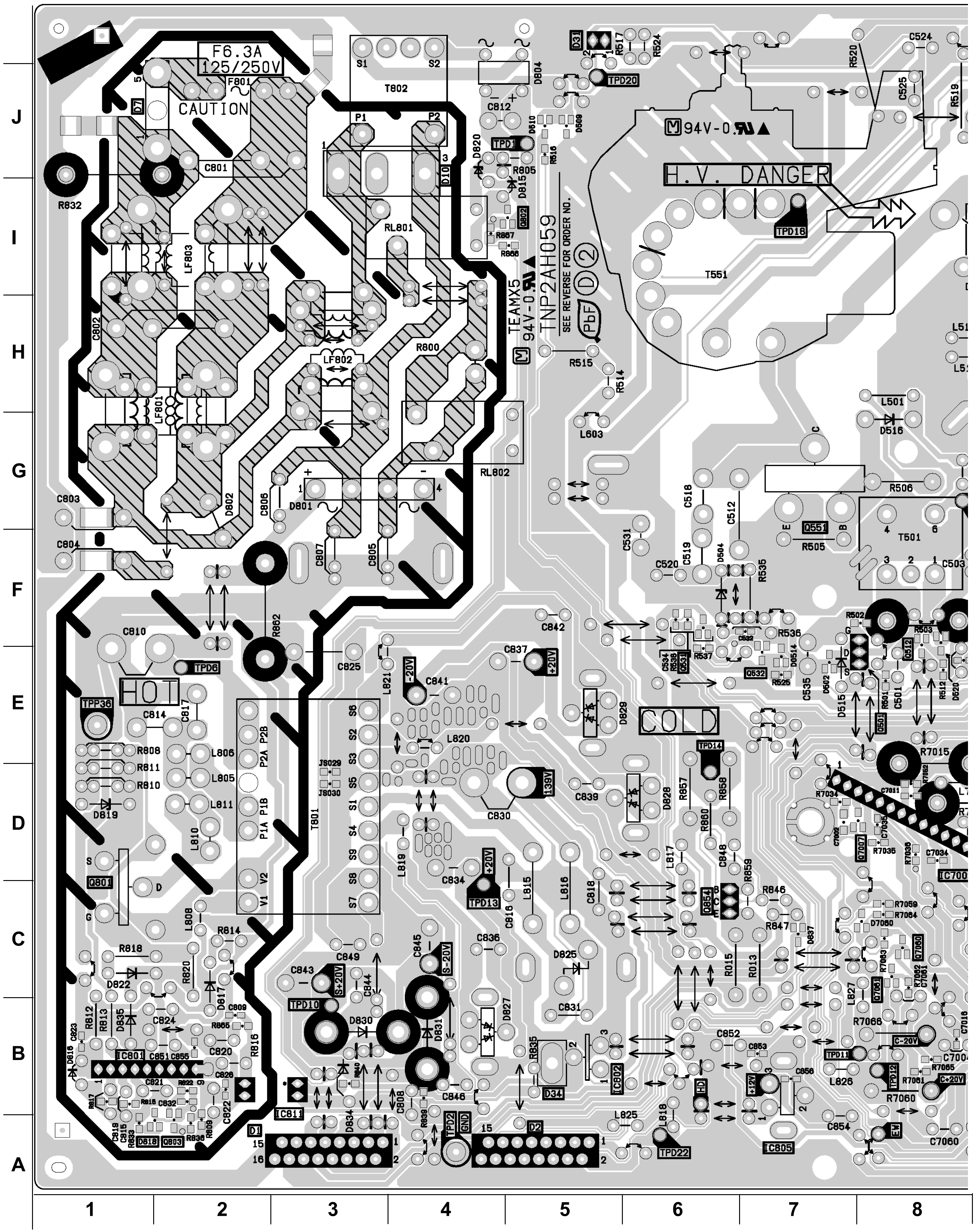

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
HOT
COLD
HOT
COLD
R840 100
IC811
C808 25V 100u
CSIG2
R839 2.2k
D34
R835 100
IC802
COLLECTOR
OUT
GND
L817 68u
139V
L808
TUC25617
Q801
400V
L810
L811
400V
L805
L806
400V
D822
R818 10 1/2W
R820 47 1/2W
C814 1000p 2kV
C817 1000p 2kV
D819
R808 0.12 1/2W
R810 0.12 1/2W
R811 0.12 1/2W
T801
V1
V2
P1A
P1B
NC
P2A
P2B
NC
S7 18
S8 17
S9 16
S4 15
S1 14
S5 13
S3 12
S2 11
S6 10
+30V-45V
CSOUND
+45V-30V
+30V-45V
+190V-280V
Delete eyelet
Delete eyelet
CSIG2
CCONV
+20V
+30V-45V
+45V-30V
-20V
R862 33k 3W
Not specified DC
C825 1000p
AC120V
D801
C807 4700p
C806 4700p
C805 4700p
Not specified DC
TPD6
187V
C810 200V 1000u
L820
C839 1kV 330p
D828
20V
L826 33u
TPD12
20V
C837 25V 4700u
CCONV
L821
D829
C841 25V 4700u
-20V
L827 33u
TPD11
-20V
C842 1kV 330p
G
F
C831 2kV 820p
L815
D825
L816
139V
C830 160V 470u
E
C836 1kV 330p
L819
D827
TPD13
L825 33u
20V
C834 35V 2200u
C
C844 1kV 330p
D830
TPD10
20V
AUDIO 23V
C843 2200u 35V
C846 1kV 330p
CSOUND
C849 50V 0.022u
D831
C845 2200u 35V
-20V
R013 27k 1W
DC5V
SET 5V
AC ON/OFF
AC ON/OFF
STBY 7V
STBY 7V
TUNER GND
TUNER GND
16
15
14
13
12
11
10
8
TUNER GND
TUNER GND
STBY 7V
STBY 7V
STBY 7V
STAND BY GND
P-BTL 40V
AC ON/OFF
NC
NC

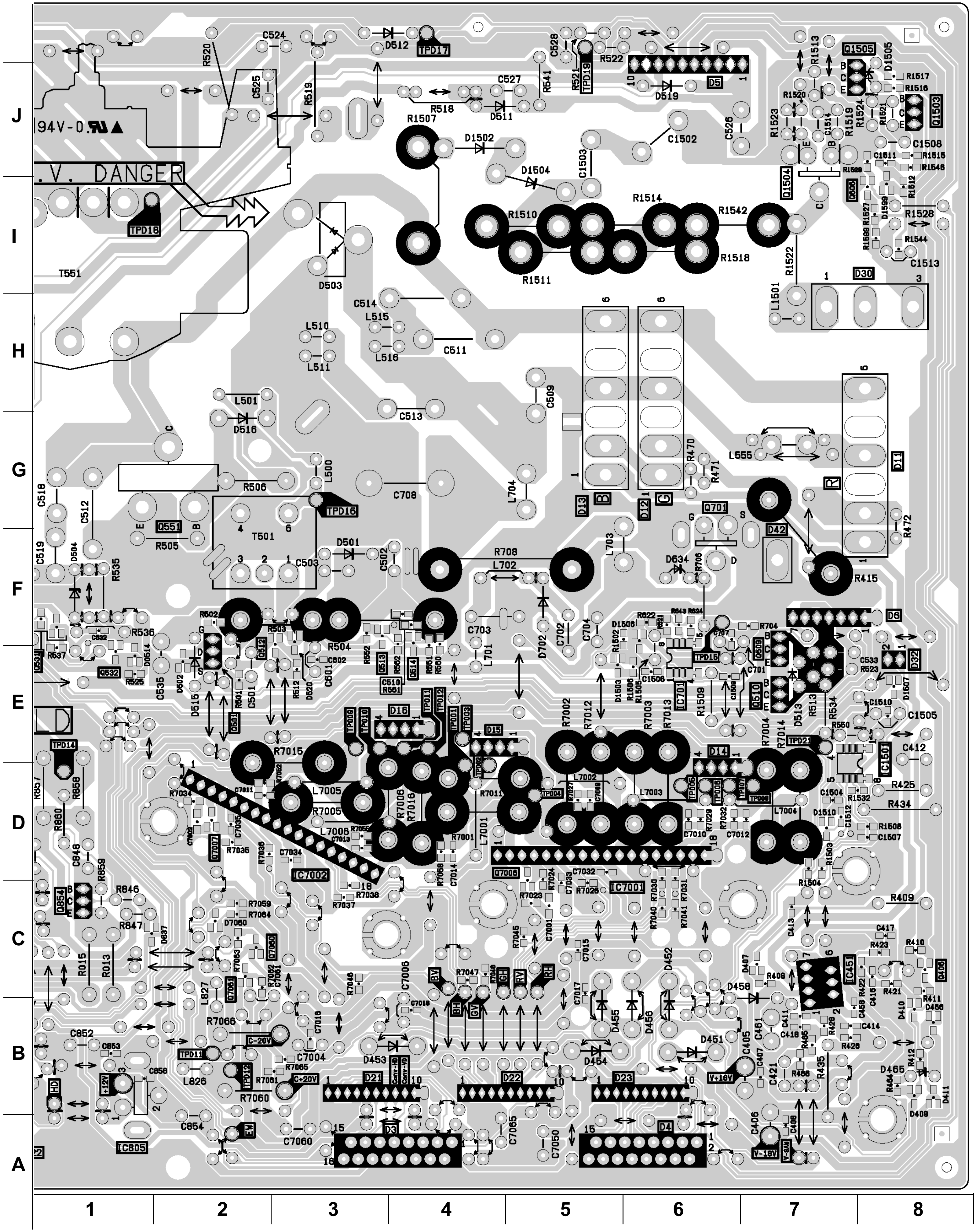

CONV V-AMP
MAX A
CONV-18V
IC805
IC7001
Q854
Q512
Q513
Q501
Q551
Q7060
Q7061
Q7006
T501
L817 68u
L818 68u
TPD14
TPD16
TPD22
D837
D515
D516
D520
D501
D502
D7060
D1503
D1506
HHS
GREEN RED BLUE
D15
D14
D16
D21
D22
D23
D1
D2
P8
STBY 7V
SOS
139V
20V
-20V
12V
42V
DC5V
CSIG2
CSIG3
CHD1
CH1
CCONV
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

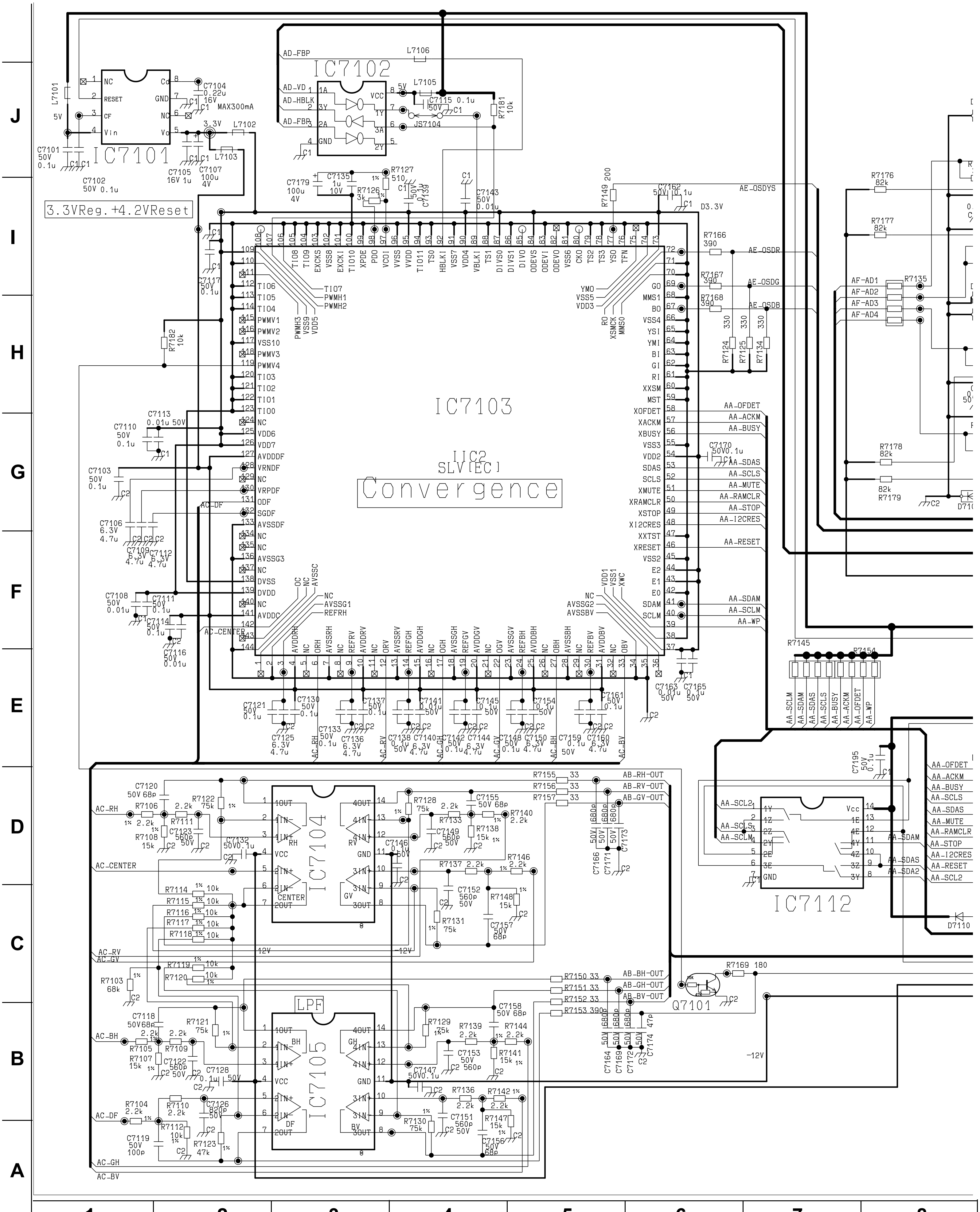


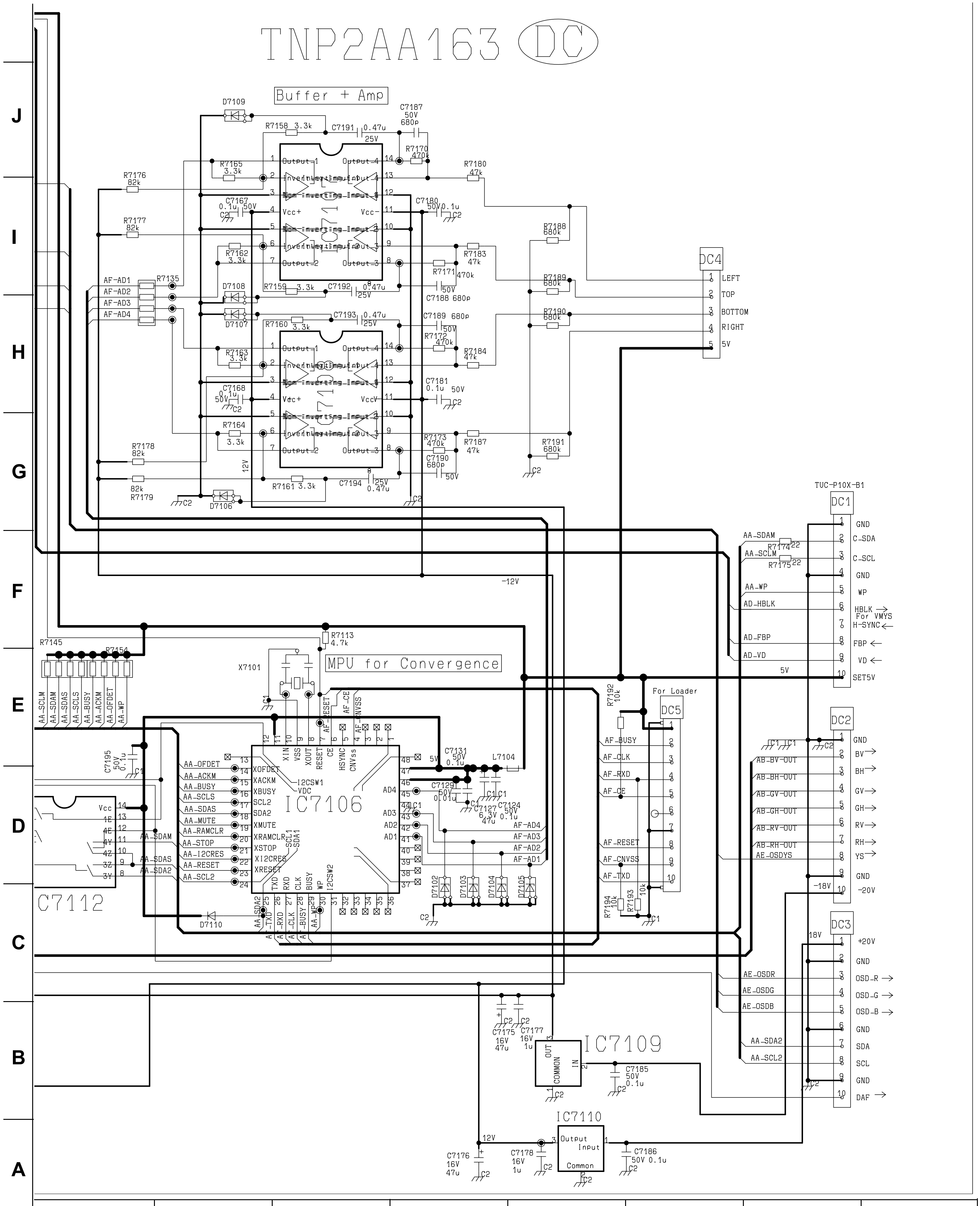
TNP2AH059
D
DYNAMIC FOCUS
FOCUS PACK
H.V. DISTRIBUTOR
TO RED CRT ANODE
TO GREEN CRT ANODE
TO BLUE CRT ANODE
DY-B
DY-G
DY-R
H-Hi
H-Low
V-Hi
V-Low
ABL
V.OUT
IC451
LA78045
H/S P8.GN1:TUC2AJ043
PROTECTOR
Q1503
Q1504
Q1505
Q606
Q406
T551
D5
D30
D42
D13
D12
D11
D31
210V
NC
GND
+20v
+12v
HEATER
140V(+B OF VM)
139V
20V
1160V
1000V
DC5V
12V
18V
-19V
-18V
70V
TO CRT ANODE
TO LG-CRT SOCKET
TO LR-CRT SOCKET
TO LB-CRT SOCKET
TO LR5
TO LB5
TO LG13
TO D6
DAF(FROM DC-PANEL)
DAF CUT(AC-ON) FROM MPU
L555
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8

D-BOARD 5 of 5 TNP2AH059 PT-53X54J


F6.3A
125/250V
F801
CAUTION
D7
C801
R832
LF803
C802
LF801
LF802
C803
C804
D802
C806
D801
C807
C805
R800
RL801
RL802
T802
S1
S2
P1
P2
D10
D804
C812
D820
TPD1
D810
D809
R805
D815
Q802
R867
R866
D31
R517
R524
TPD20
TEAMX5
94V-0
TNP2AH059
D2
SEE REVERSE FOR ORDER NO.
PbF
94V-0
H.V. DANGER
TPD18
T551
R515
R514
L603
R520
C524
C525
R519
L501
D516
R506
Q551
R505
T501
C503
C518
C512
C531
C519
C520
D504
R535
C842
R536
Q532
R525
C535
D502
D515
R501
C501
R512
R502
R503
Q512
Q501
R7015
R862
C810
C825
C837
+20V
TPD6
HOT
C841
-20V
L821
TPP36
C814
C817
R808
R811
R810
L806
L805
L811
D819
L810
T801
P2A P2B
P1A P1B
V1
V2
S6
S2
S3
S5
S1
S4
S9
S8
S7
JS029
JS030
L820
C830
139V
C839
D829
COLD
TPD14
D828
R857
R858
R860
L817
C848
R859
Q854
R846
R847
D837
Q801
S
D
G
L808
R814
R818
R820
D822
D817
L819
C834
+20V
TPD13
C916
L815
L816
C818
C836
D825
R015
R013
C845
S-20V
C849
C843
S+20V
C844
TPD10
D830
D831
D827
C831
R812
R813
D835
C824
C809
R865
C823
R816
C820
D816
IC801
C851
C855
C821
R822
C826
C832
R818
R817
C819
C815
R833
D818
Q803
R836
R809
C822
IC811
D1
D834
C808
R839
C846
TPD2
GND
R835
D34
IC802
C852
C853
C856
HD
+12V
L825
L818
TPD22
IC805
C854
EW
L826
TPD11
TPD12
R7060
C+20V
C-20V
C7060
R7065
R7061
C7004
R7066
L827
Q7061
C7018
R7059
R7064
D7060
Q7060
R7063
R7062
C7061
R7034
C7011
R7062
C7002
Q7007
C7035
R7036
C7034
IC700
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
H.V. DANGER
94V-0
T551
TPD17
TPD18
TPD19
TPD16
TPD14
TPD11
TPD12
TPD21
D512
D511
D519
D1502
D1504
D503
D516
D501
D5
D6
D11
D12
D13
D14
D15
D16
D21
D22
D23
D3
D4
D30
D32
D42
D634
D702
D453
D454
D455
D456
D451
D452
D458
D465
C524
C525
C527
C528
C526
C1502
C1503
C1508
C1513
C514
C511
C513
C509
C708
C503
C502
C518
C512
C519
C535
C501
C601
C703
C702
C704
C701
C533
C1505
C412
C852
C854
C7004
C7060
C7065
C7050
C7006
C405
C406
C421
C461
R520
R519
R518
R522
R521
R541
R1507
R1510
R1511
R1514
R1518
R1542
R1522
R1523
R1513
R1519
R1524
R1528
R506
R505
R535
R536
R537
R504
R708
R470
R471
R472
R415
R7015
R7005
R7006
R7016
R7001
R7002
R7012
R7003
R7013
R7004
R7014
R1509
R513
R534
R425
R434
R409
R846
R847
R858
R859
R860
R013
R015
R7060
R7066
R435
Q1505
Q1503
Q1504
Q551
Q701
Q510
Q509
Q512
Q513
Q514
Q501
Q531
Q532
Q854
Q7006
Q7007
IC701
IC1501
IC7001
IC7002
IC451
IC805
L510
L511
L515
L516
L501
L500
L555
L704
L703
L702
L701
L7001
L7002
L7003
L7004
L7005
L7006
L1501
L826
L827
T501
B
G
R
BV
BH
GV
GH
RV
RH
C-20V
C+20V
V+16V
V-16V
+12V
HD
EW


IC7101
3.3VReg.+4.2VReset
IC7102
IC7103
IIC2
SLV[EC]
Convergence
IC7104
IC7105
LPF
IC7112
Q7101
AD-FBP
AD-VD
AD-HBLK
AE-OSDYS
AE-OSDR
AE-OSDG
AE-OSDB
AF-AD1
AF-AD2
AF-AD3
AF-AD4
AA-OFDET
AA-ACKM
AA-BUSY
AA-SDAS
AA-SCLS
AA-MUTE
AA-RAMCLR
AA-STOP
AA-I2CRES
AA-RESET
AA-SDAM
AA-SCLM
AA-WP
AA-SCL2
AA-SDA2
AC-RH
AC-CENTER
AC-RV
AC-GV
AC-BH
AC-DF
AC-GH
AC-BV
AB-RH-OUT
AB-RV-OUT
AB-GV-OUT
AB-BH-OUT
AB-GH-OUT
AB-BV-OUT
D3.3V
12V
-12V
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


TNP2AA163 DC
Buffer + Amp
MPU for Convergence
IC7106
IC7109
IC7110
C7112
DC1
TUC-P10X-B1
GND
C-SDA
C-SCL
GND
WP
HBLK
For VMYS
H-SYNC
FBP
VD
SET5V
DC2
GND
BV
BH
GV
GH
RV
RH
YS
GND
-20V
DC3
+20V
GND
OSD-R
OSD-G
OSD-B
GND
SDA
SCL
GND
DAF
DC4
LEFT
TOP
BOTTOM
RIGHT
5V
DC5
For Loader
AF-BUSY
AF-CLK
AF-RXD
AF-CE
AF-RESET
AF-CNVSS
AF-TXD
AA-SDAM
AA-SCLM
AA-WP
AD-HBLK
AD-FBP
AD-VD
AB-BV-OUT
AB-BH-OUT
AB-GV-OUT
AB-GH-OUT
AB-RV-OUT
AB-RH-OUT
AE-OSDYS
AE-OSDR
AE-OSDG
AE-OSDB
AA-SDA2
AA-SCL2
AF-AD1
AF-AD2
AF-AD3
AF-AD4
AA-OFDET
AA-ACKM
AA-BUSY
AA-SCLS
AA-SDAS
AA-MUTE
AA-RAMCLR
AA-STOP
AA-I2CRES
AA-RESET
AA-SCL2
AA-SCLM
AA-SDAM
AA-SDAS
AA-SCLS
AA-BUSY
AA-ACKM
AA-OFDET
AA-WP
XOFDET
XACKM
XBUSY
SCL2
SDA2
XMUTE
XRAMCLR
XSTOP
XI2CRES
XRESET
XIN
VSS
XOUT
RESET
CE
HSYNC
CNVss
I2CSW1
VDC
SCL1
SDA1
TXD
RXD
CLK
BUSY
WP
I2CSW2
AD1
AD2
AD3
AD4
Output-1
Output-2
Output-3
Output-4
Inverting-Input-1
Non-inverting-Input-1
Vcc+
Vcc-
D7109
D7108
D7107
D7106
D7110
D7102
D7103
D7104
D7105
X7101
L7104
R7113 4.7k
R7145
R7154
R7135
R7158 3.3k
R7159 3.3k
R7160 3.3k
R7161 3.3k
R7162 3.3k
R7163 3.3k
R7164 3.3k
R7165 3.3k
R7170 470k
R7171 470k
R7172 470k
R7173 470k
R7174 22
R7175 22
R7176 82k
R7177 82k
R7178 82k
R7179 82k
R7180 47k
R7183 47k
R7184 47k
R7187 47k
R7188 680k
R7189 680k
R7190 680k
R7191 680k
R7192 10k
R7193 10k
R7194 10k
C7124 50V 0.1u
C7127 6.3V 47u
C7129 50V 0.01u
C7131 50V 0.1u
C7167 0.1u 50V
C7168 0.1u 50V
C7175 16V 47u
C7176 16V 47u
C7177 16V 1u
C7178 16V 1u
C7180 50V 0.1u
C7181 0.1u 50V
C7185 50V 0.1u
C7186 50V 0.1u
C7187 50V 680p
C7188 680p
C7189 680p 50V
C7190 680p 50V
C7191 0.47u 25V
C7192 0.47u 25V
C7193 0.47u 25V
C7194 0.47u 25V
C7195 50V 0.1u
Vcc
OUT
COMMON
IN
Output
Input
Common
12V
-12V
5V
18V
-18V
C1
C2
J
I
H
G
F
E
D
C
B
A
1
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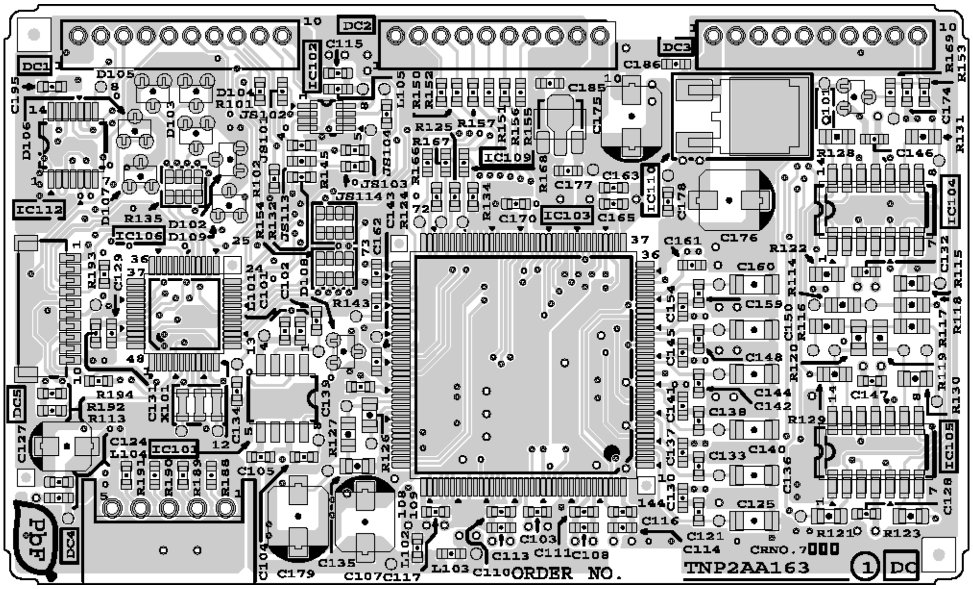
5
6
7
8

J

I

H

G



DC1
DC2
DC3
DC4
DC5
IC101
IC102
IC103
IC104
IC105
IC106
IC109
IC110
IC112
X101
Q101
D102
D103
D104
D105
D106
D107
D108
D109
L102
L103
L104
L105
JS102
JS103
JS104
JS113
JS114
C104
C105
C107
C117
C110
C113
C111
C108
C114
C116
C121
C125
C135
C179
C176
C175
C185
C186
C195
TNP2AA163
CRNO.7000
ORDER NO.
DC
PbF

F

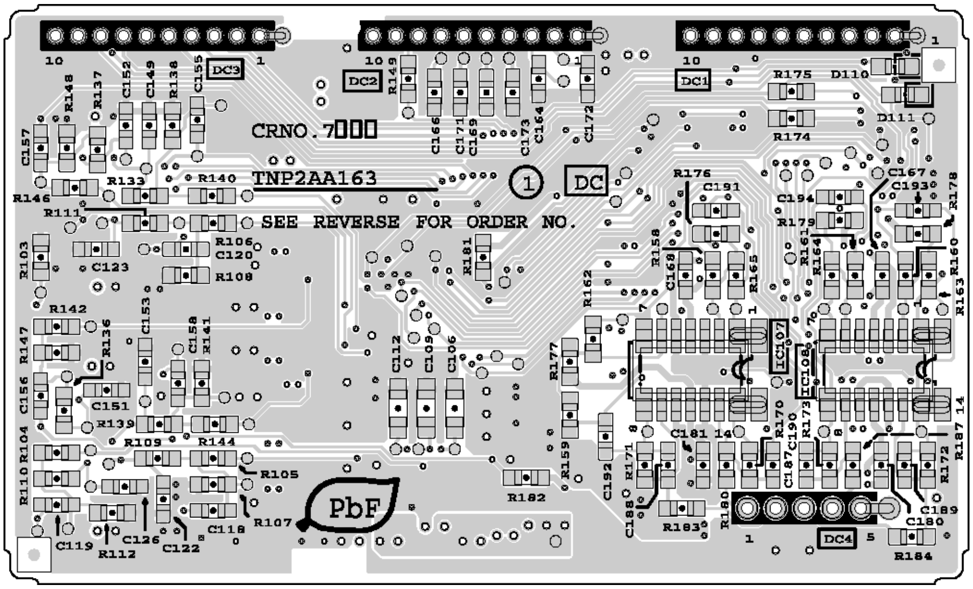
E

D

C

B

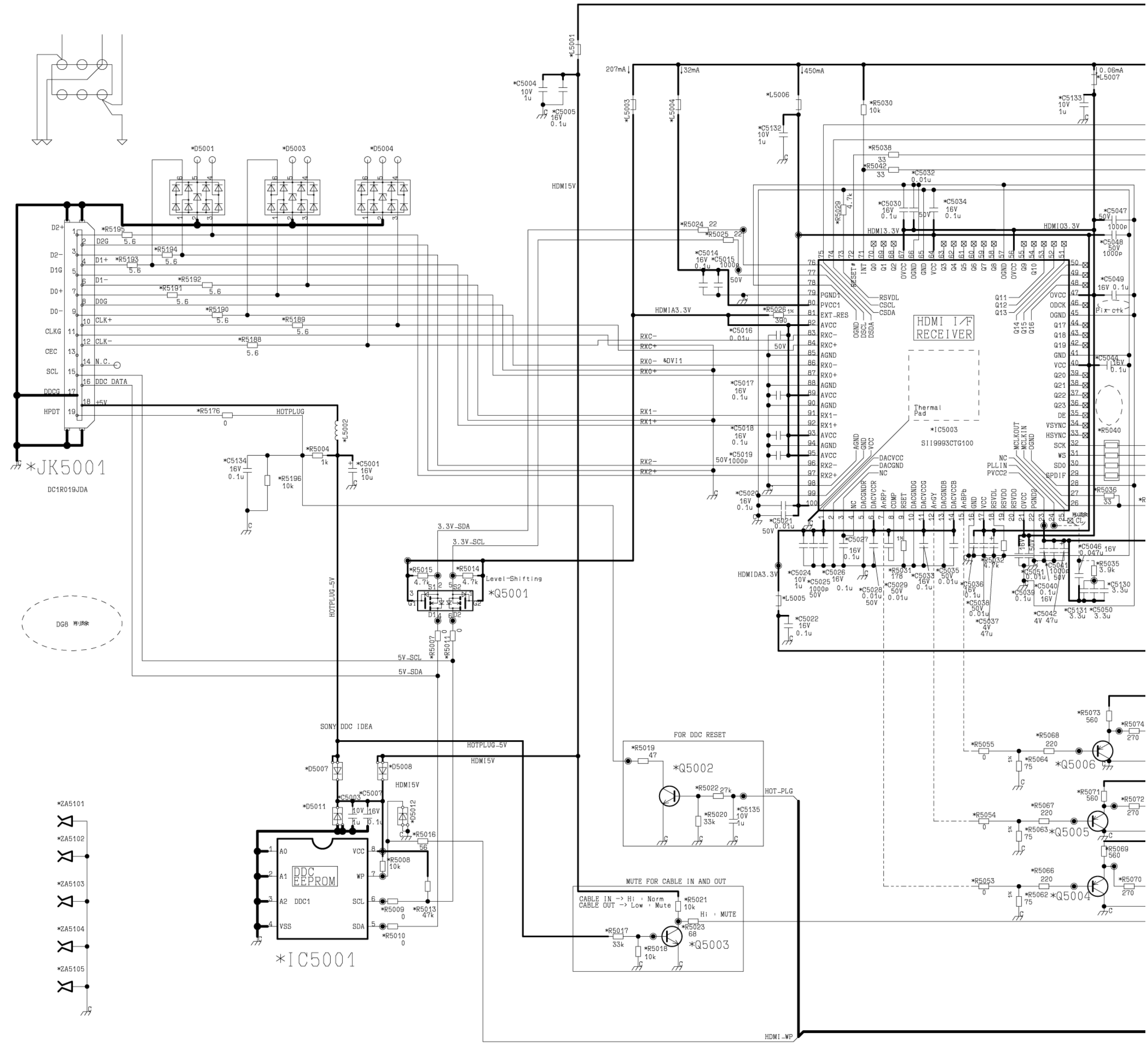
A

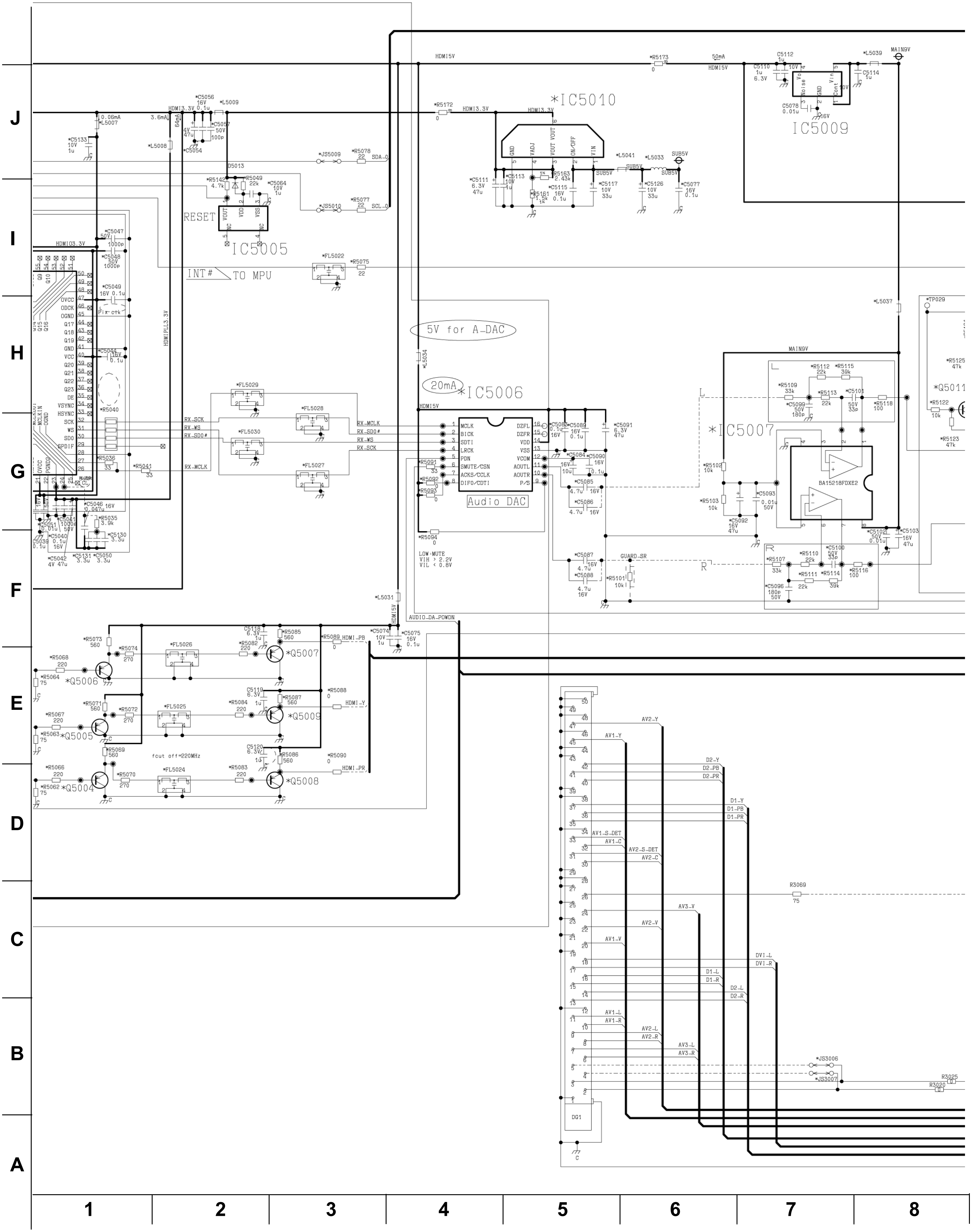


DC1
DC2
DC3
DC4
IC107
IC108
D110
D111
CRNO.7000
TNP2AA163
DC
SEE REVERSE FOR ORDER NO.
PbF
R174
R175
R176
R181
R182
R183
R184
C119
C122
C126
C118
R107
R112

1 2 3 4 5 6 7 8

DC-PCB TOP & BOTTOM VIEW


*JK5001
DC1R019JDA
D2+
D2−
D1G
D0+
D0−
CLKG
CEC
SCL
DDCG
HPDT
D2G
D1+
D1−
D0G
CLK+
CLK−
N.C.
DDC DATA
+5V
*D5001
*D5003
*D5004
*R5195 5.6
*R5194 5.6
*R5193 5.6
*R5192 5.6
*R5191 5.6
*R5190 5.6
*R5189 5.6
*R5188 5.6
*R5176 0
HOTPLUG
*R5004 1k
*L5002
*C5001 16V 10u
*C5134 16V 0.1u
*R5196 10k
HDMI5V
*L5001
*C5004 10V 1u
*C5005 16V 0.1u
207mA
32mA
450mA
*L5003
*L5004
*L5006
*C5132 10V 1u
*R5030 10k
*R5038 33
*R5042 33
*C5032 0.01u
*R5029 4.7k
*C5030 16V 0.1u
*C5034 16V 0.1u
*R5024 22
*R5025 22
*C5014 16V 0.1u
*C5015 1000p 50V
HDMIA3.3V
HDMI3.3V
HDMIO3.3V
*R5026 390
*C5016 0.01u
*C5017 16V 0.1u
*C5018 16V 0.1u
*C5019 50V 1000p
*C5020 16V 0.1u
*C5021 0.01u 50V
RXC−
RXC+
RX0− &DVI1
RX0+
RX1−
RX1+
RX2−
RX2+
HDMI I/F RECEIVER
Thermal Pad
*IC5003
SII9993CTG100
PGND1
PVCC1
EXT_RES
AVCC
AGND
RSVDL
CSCL
CSDA
DACVCC
DACGND
NC
PLLIN
PVCC2
MCLKOUT
MCLKIN
OGND
OVCC
ODCK
VSYNC
HSYNC
SCK
WS
SD0
SPDIF
*C5133 10V 1u
*L5007 0.06mA
*C5047 50V 1000p
*C5048 50V 1000p
*C5049 16V 0.1u
*C5044 16V 0.1u
*R5040
*R5036 33
Pix clk
*C5024 10V 1u
*C5025 1000p 50V
*C5026 16V 0.1u
*C5027 16V 0.1u
*C5028 0.01u 50V
*C5029 50V 0.01u
*R5031 178
*C5033 16V 0.1u
*C5035 50V 0.01u
*C5036 16V 0.1u
*C5037 4V 47u
*C5038 50V 0.01u
*C5039 0.1u
*C5040 0.1u 16V
*C5041 1000p 50V
*C5042 4V 47u
*C5046 0.047u 16V
*C5050 3.3u
*C5051 0.01u
*C5130 3.3u
*C5131 3.3u
*R5032 4.7k
*R5035 3.9k
HDMIDA3.3V
*L5005
*C5022 16V 0.1u
3.3V_SDA
3.3V_SCL
*R5015 4.7k
*R5014 4.7k
Level-Shifting
*Q5001
HOTPLUG_5V
DG8 削除
5V_SCL
5V_SDA
*R5007 0
*R5011 0
SONY DDC IDEA
HOTPLUG_5V
HDMI5V
*D5007
*D5008
*D5011
*D5012
*C5003 10V 1u
*C5007 16V 0.1u
*R5016 56
*R5008 10k
*R5009 0
*R5013 47k
*R5010 0
DDC EEPROM
DDC1
A0
A1
A2
VSS
VCC
WP
SCL
SDA
*IC5001
FOR DDC RESET
*R5019 47
*Q5002
*R5022 27k
*R5020 33k
*C5135 10V 1u
HOT_PLG
MUTE FOR CABLE IN AND OUT
CABLE IN → Hi : Norm
CABLE OUT → Low : Mute
*R5021 10k
Hi : MUTE
*R5017 33k
*R5018 10k
*R5023 68
*Q5003
HDMI_WP
*ZA5101
*ZA5102
*ZA5103
*ZA5104
*ZA5105
*R5073 560
*R5074 270
*R5055 0
*R5068 220
*R5064 75
*Q5006
*R5071 560
*R5072 270
*R5054 0
*R5067 220
*R5063 75
*Q5005
*R5069 560
*R5070 270
*R5053 0
*R5066 220
*R5062 75
*Q5004


J
I
H
G
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D
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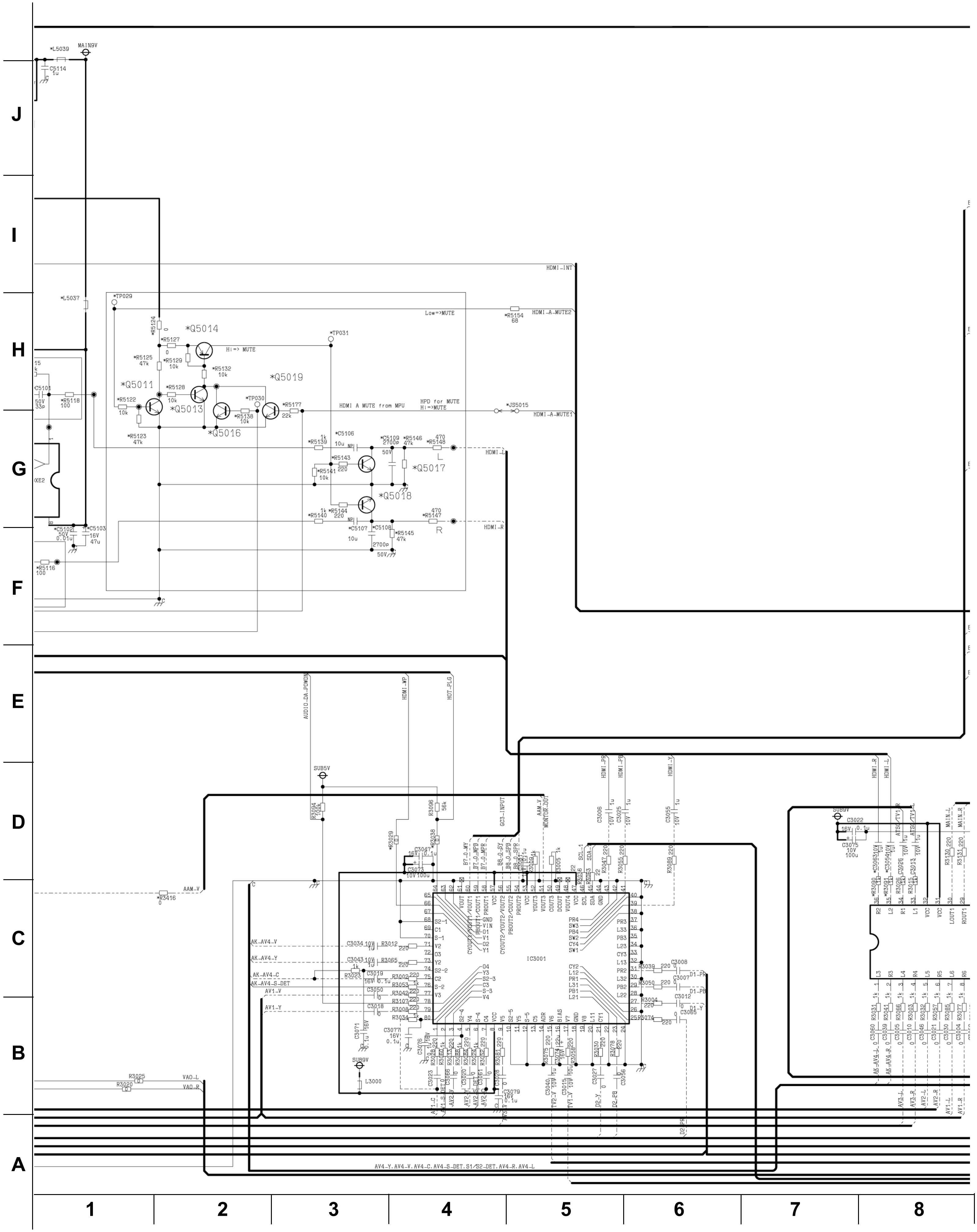
6
7
8
HDMI5V
HDMI3.3V
HDMIO3.3V
HDMIPLL3.3V
MAIN9V
SUB5V
*IC5010
GND
VADJ
VOUT
ON/OFF
VIN
IC5009
Noise
Vo
GND
Vin
Cont
RESET
VOUT
VDD
VSS
NC
IC5005
INT#
TO MPU
SDA-0
SCL-0
D5013
5V for A-DAC
20mA
*IC5006
MCLK
BICK
SDTI
LRCK
PDN
SMUTE/CSN
ACKS/CCLK
DIF0/CDTI
DZFL
DZFR
VDD
VSS
VCOM
AOUTL
AOUTR
P/S
Audio DAC
LOW=MUTE
VIH > 2.2V
VIL < 0.8V
RX-SCK
RX-WS
RX-SD0#
RX-MCLK
*IC5007
BA15218FDXE2
L
R
GUARD-SR
*Q5011
*TP029
AUDIO-DA-POWDN
HDMI-PB
HDMI-Y
HDMI-PR
*Q5004
*Q5005
*Q5006
*Q5007
*Q5008
*Q5009
fcut off=220MHz
*FL5024
*FL5025
*FL5026
*FL5022
*FL5027
*FL5028
*FL5029
*FL5030
DG1
AV1-Y
AV2-Y
D2-Y
D2-PB
D2-PR
D1-Y
D1-PB
D1-PR
AV1-S-DET
AV1-C
AV2-S-DET
AV2-C
AV3-V
AV2-V
AV1-V
DVI-L
DVI-R
D1-L
D1-R
D2-L
D2-R
AV1-L
AV1-R
AV2-L
AV2-R
AV3-L
AV3-R
R3069
*JS3006
*JS3007
R3025
R3020


J
I
H
G
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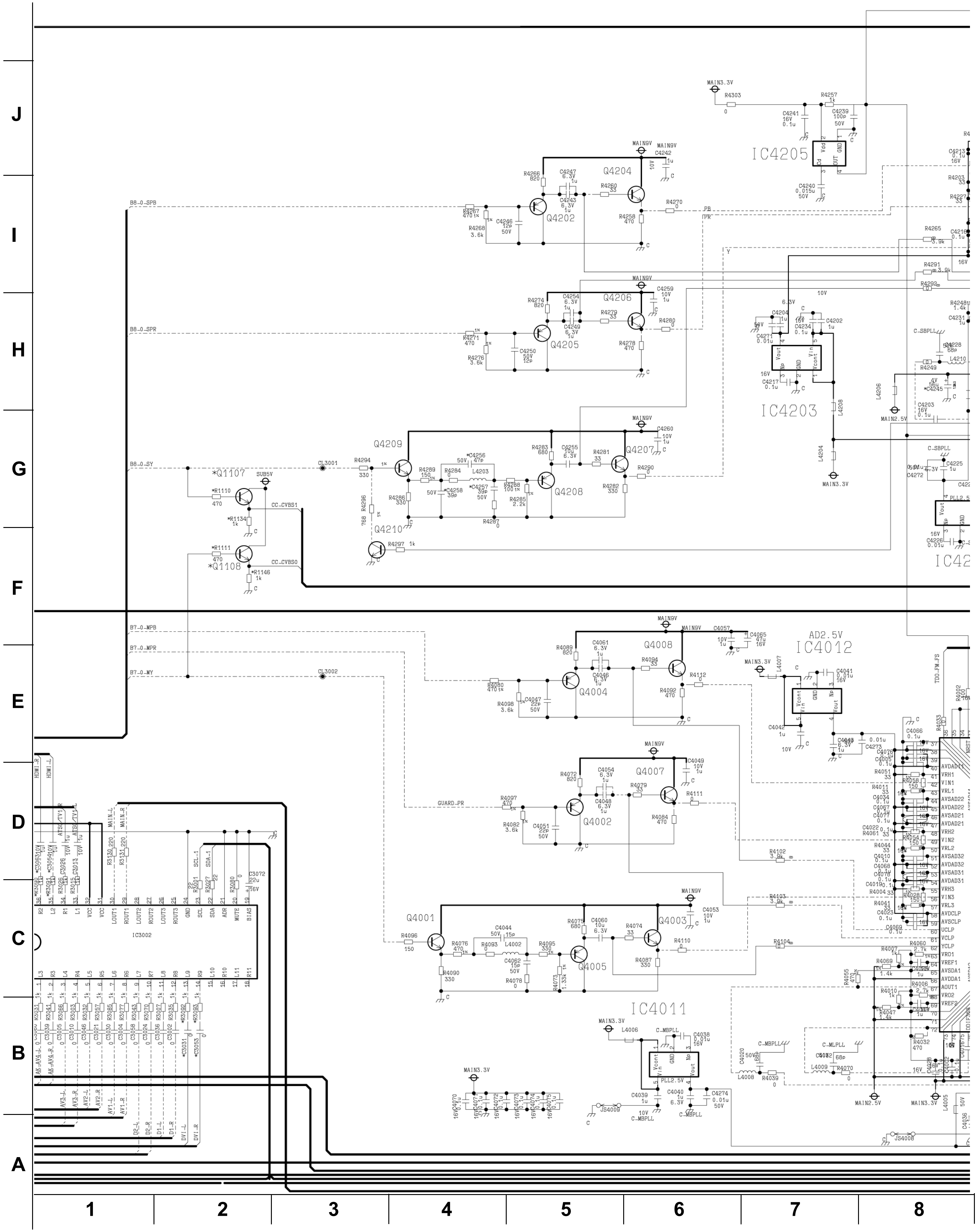
D
C
B
A
1
2
3
4
5
6
7
8
*L5039
MAIN9V
C5114
1u
*L5037
*TP029
*R5124
*R5127
*Q5014
Hi=> MUTE
*TP031
Low=>MUTE
*R5154
68
HDMI-A-MUTE2
HDMI-INT
*R5125
47k
*R5129
10k
*R5132
10k
*Q5011
*R5128
10k
*Q5013
*Q5019
*TP030
*R5177
22k
HDMI A MUTE from MPU
HPD for MUTE
Hi=>MUTE
*JS5015
HDMI-A-MUTE1
*R5122
10k
*R5138
10k
*Q5016
*R5123
47k
*C5101
35p
*R5118
100
*R5139
1k
*C5106
10u
*C5109
2700p
50V
*R5146
47k
*R5148
470
L
HDMI-L
*R5143
220
*R5141
10k
*Q5017
*Q5018
*R5140
1k
*R5144
220
*R5147
470
R
HDMI-R
*C5107
10u
*C5108
2700p
50V
*R5145
47k
*C5102
50V
0.01u
*C5103
16V
47u
*R5116
100
AUDIO_DA_POWDN
HDMI_WP
HOT_PLG
SUB5V
R3094
100k
R3096
56k
*R3029
*R3038
C3047
16V
C3073
10V 100u
GC3-INPUT
AAM-Y
MONITOR-OUT
HDMI-PR
HDMI-PB
HDMI-Y
C3006
C3025
C3055
R3047 220
R3055 220
R3089 220
R3005 1k
IC3001
AAM-V
*R3416
0
AK-AV4-V
AK-AV4-Y
AK-AV4-C
AK-AV4-S_DET
AV1-V
AV1-Y
C3034
R3012
C3043
R3065
R3023
C3019
R3002
R3053
C3050
R3042
R3107
C3018
R3008
R3034
C3071
C3077
C3076
SUB9V
L3000
R3039
C3008
D1-PR
R3050
C3007
D1-PB
R3004
C3012
D1-Y
R3074
C3065
R3025
R3020
VAO-L
VAO-R
AV4-Y,AV4-V,AV4-C,AV4-S-DET,S1/S2-DET,AV4-R,AV4-L
C3079
C3040
TV2-V
C3015
TV1-V
C3027
D2-Y
C3056
D2-PB
D2-PR
HDMI-R
HDMI-L
SUB9V
C3022
C3075
10V
100u
ATSC/TV1-R
ATSC/TV1-L
MAIN-L
MAIN-R
R3130 220
R3131 220
R3090
R3091
R3026
R3015
C3026
C3013
R3031
R3041
R3066
R3003
R3032
R3057
R3085
R3077
C3060
C3039
C3005
C3010
C3046
C3021
C3030
C3004
AK-AV4-L
AK-AV4-R
AV3-L
AV3-R
AV2-L
AV2-R
AV1-L
AV1-R

DG-BOARD 3 of 11 TNP2AA173AE PT-53X54J


J
I
H
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D
C
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A
1
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4
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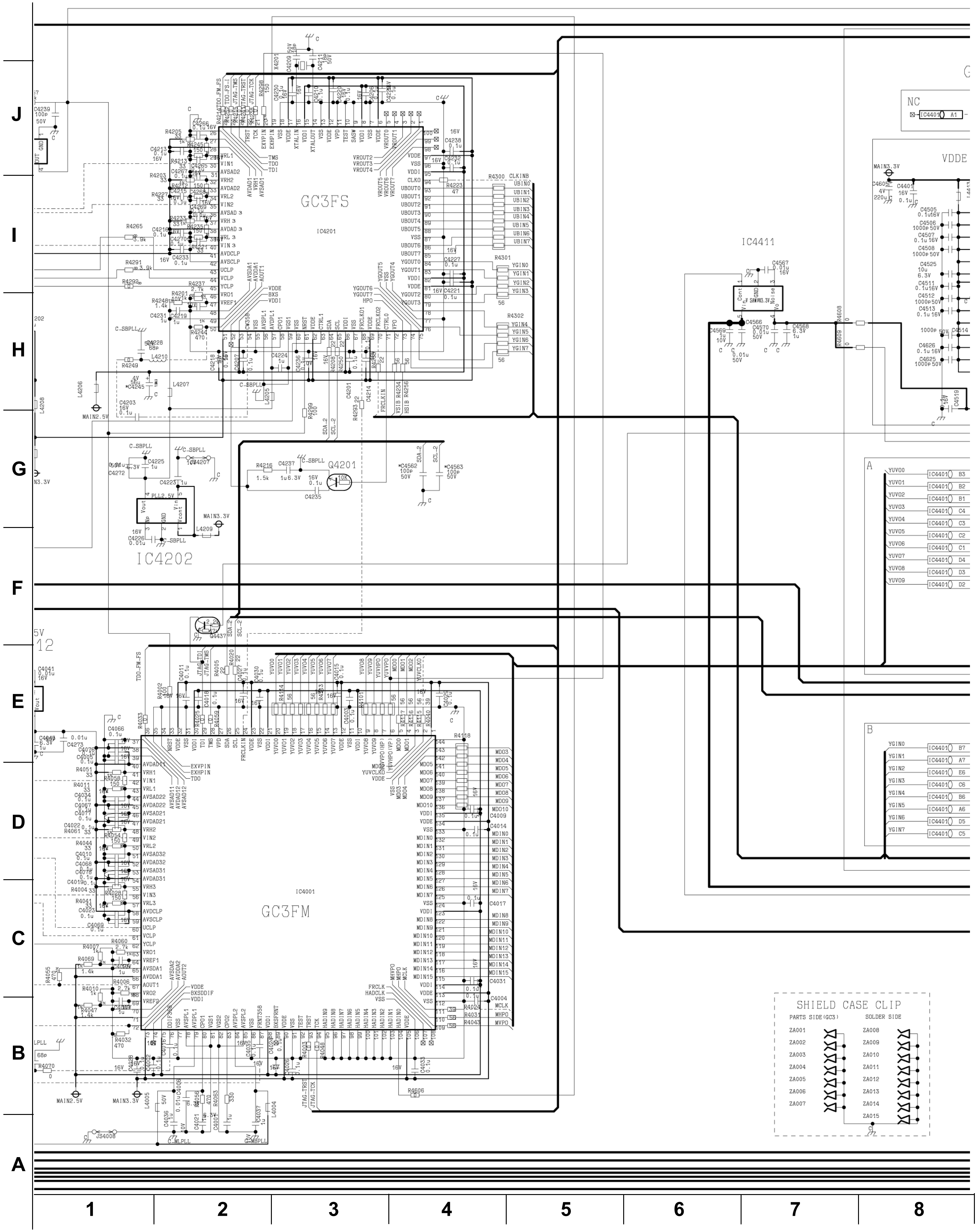
6
7
8
IC4205
IC4203
IC4012
AD2.5V
IC4011
IC3002
Q4204
Q4202
Q4206
Q4205
Q4209
Q4207
Q4208
Q4210
*Q1107
*Q1108
Q4008
Q4004
Q4007
Q4002
Q4001
Q4003
Q4005
MAIN9V
MAIN3.3V
MAIN2.5V
SUB5V
B8-0-SPB
B8-0-SPR
B8-0-SY
B7-0-MPB
B7-0-MPR
B7-0-MY
CL3001
CL3002
CC-CVBS1
CC-CVBS0
GUARD-PR
PB
PR
Y
C-SBPLL
C-MBPLL
C-MLPLL
JS4009
JS4008
TDO-FM-FS
HDMI-R
HDMI-L
MAIN-L
MAIN-R
SCL-1
SDA-1
AV3-L
AV3-R
AV2-L
AV2-R
AV1-L
AV1-R
D2-L
D2-R
D1-L
D1-R
DVI-L
DVI-R
PLL2.5V
AVDAD11
VRH1
VIN1
VRL1
AVSAD22
AVDAD22
AVSAD21
AVDAD21
VRH2
VIN2
VRL2
AVSAD32
AVDAD32
AVSAD31
AVDAD31
VRH3
VIN3
VRL3
AVDCLP
AVSCLP
UCLP
VCLP
YCLP
VRO1
VREF1
AVSDA1
AVDDA1
AOUT1
VRO2
VREF2
NRST


J
I
H
G
F
E
D
C
B
A
1
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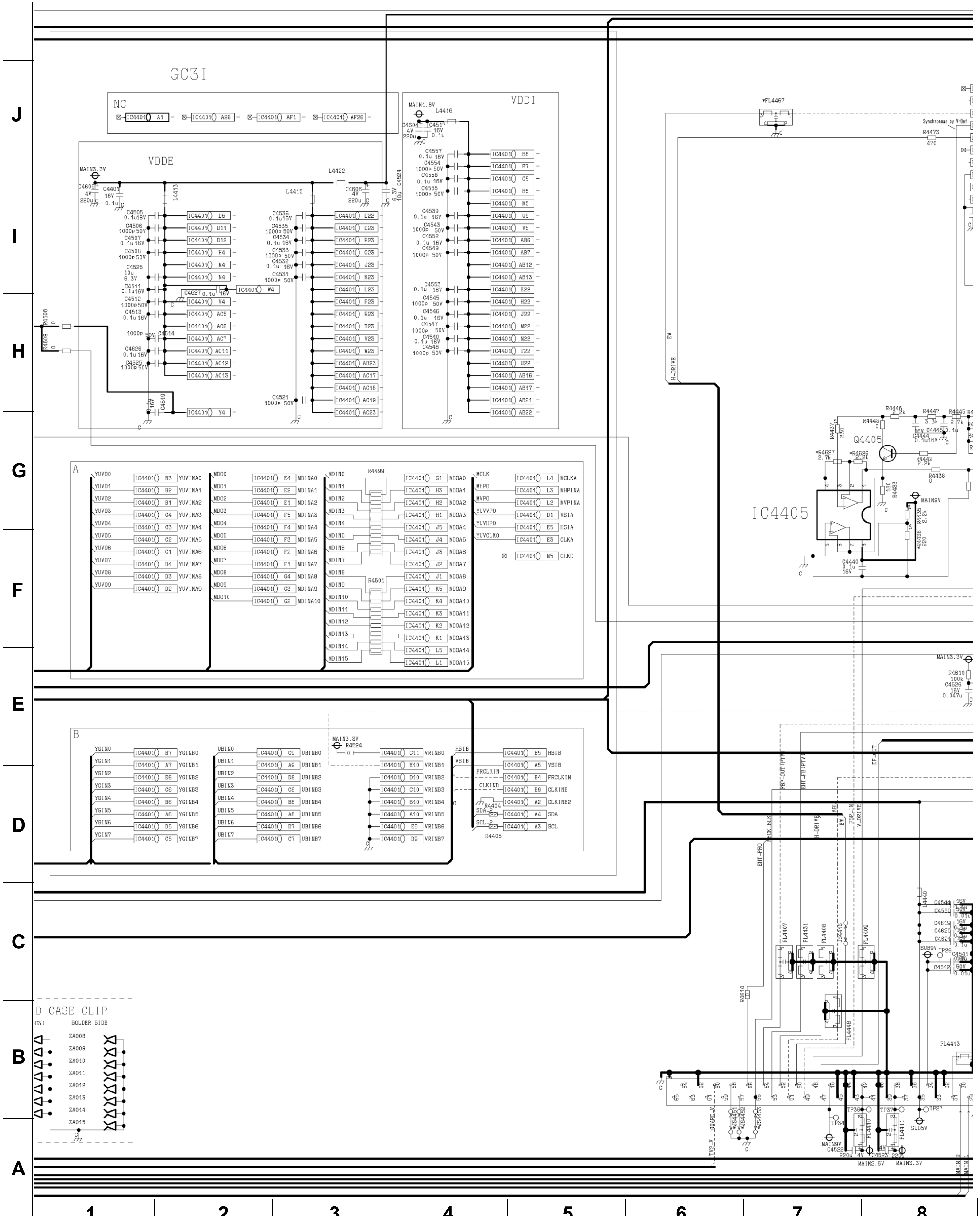
6
7
8
GC3FS
IC4201
X4201
R4300
CLKINB
UBIN0
UBIN1
UBIN2
UBIN3
UBIN4
UBIN5
UBIN6
UBIN7
R4301
YGIN0
YGIN1
YGIN2
YGIN3
R4302
YGIN4
YGIN5
YGIN6
YGIN7
C_SBPLL
L4210
L4206
L4207
L4208
MAIN2.5V
Q4201
PLL2.5V
IC4202
MAIN3.3V
L4209
SDA_2
SCL_2
IC4411
V SAW/H3.3V
NC
IC4401
VDDE
A
YUVO0
YUVO1
YUVO2
YUVO3
YUVO4
YUVO5
YUVO6
YUVO7
YUVO8
YUVO9
B
YGIN0
YGIN1
YGIN2
YGIN3
YGIN4
YGIN5
YGIN6
YGIN7
Q4437
GC3FM
IC4001
R4118
MDO3
MDO4
MDO5
MDO6
MDO7
MDO8
MDO9
MDO10
MDIN0
MDIN1
MDIN2
MDIN3
MDIN4
MDIN5
MDIN6
MDIN7
MDIN8
MDIN9
MDIN10
MDIN11
MDIN12
MDIN13
MDIN14
MDIN15
MCLK
MHPO
MVPO
MAIN2.5V
MAIN3.3V
JS4008
C_MLPLL
C_MBPLL
JTAG_TRST
JTAG_TCK
R4606
SHIELD CASE CLIP
PARTS SIDE(GC3)
SOLDER SIDE
ZA001
ZA002
ZA003
ZA004
ZA005
ZA006
ZA007
ZA008
ZA009
ZA010
ZA011
ZA012
ZA013
ZA014
ZA015


GC3I
NC
VDDI
VDDE
A
B
IC4405
Q4405
FL4467
Synchronous by V-Def
H-DRIVE
EW
D CASE CLIP
SOLDER SIDE
ZA008
ZA009
ZA010
ZA011
ZA012
ZA013
ZA014
ZA015
MAIN3.3V
MAIN1.8V
MAIN9V
MAIN2.5V
SUB9V
SUB5V
J
I
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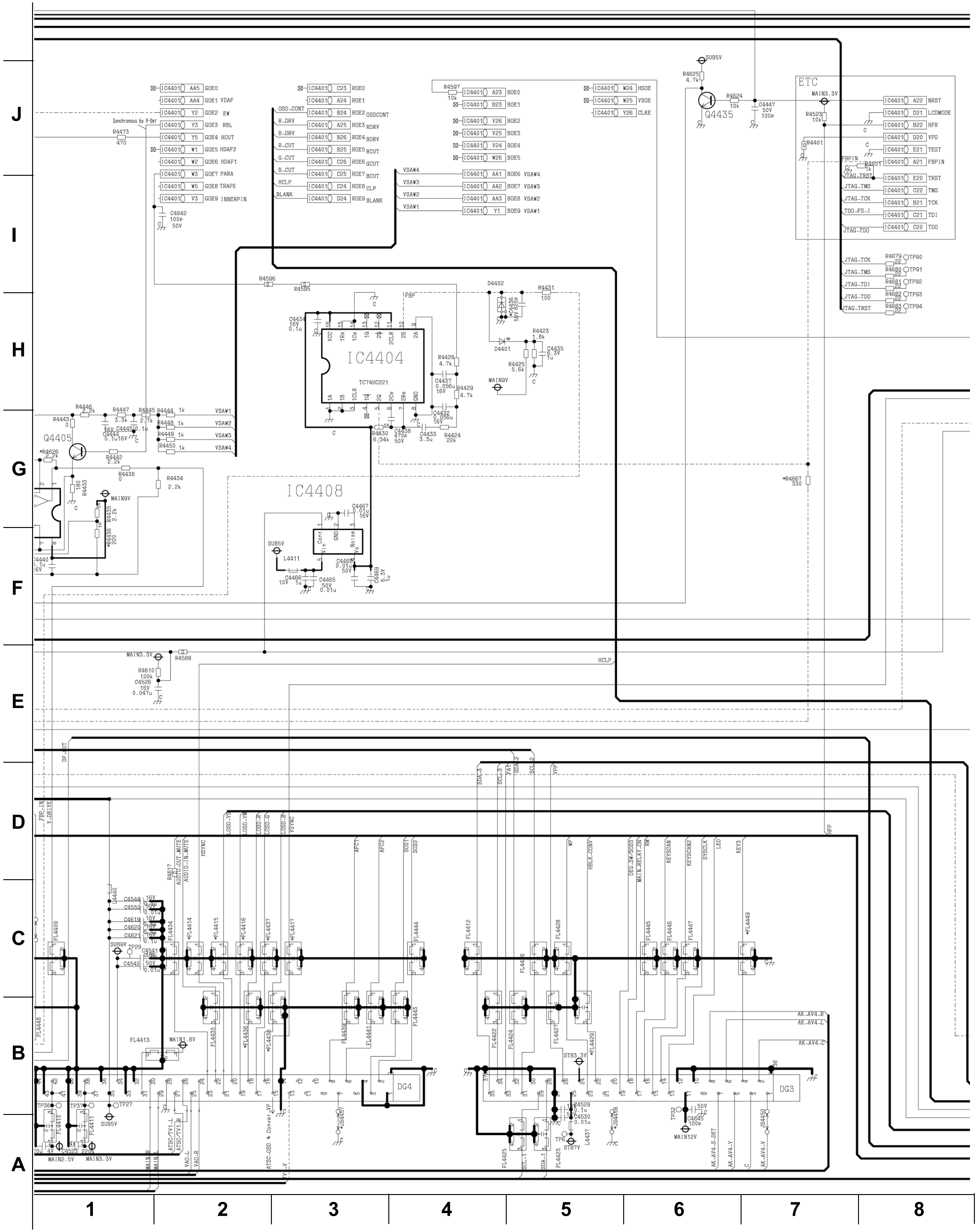
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IC4404
TC74HC221
IC4408
Q4405
Q4435
ETC
DG4
DG3
SUB5V
MAIN3.3V
MAIN9V
SUB9V
MAIN1.8V
MAIN2.5V
MAIN12V
STB3.3V
STB7V
GOE0
GOE1 VDAF
GOE2 EW
GOE3 RBL
GOE4 HOUT
GOE5 HDAF2
GOE6 HDAF1
GOE7 PARA
GOE8 TRAPE
GOE9 INNERPIN
Synchronous by V-Def
ROE0
ROE1
ROE2 OSDCONT
ROE3 RDRV
ROE4 BDRV
ROE5 RCUT
ROE6 GCUT
ROE7 BCUT
ROE8 CLP
ROE9 BLANK
OSD_CONT
R_DRV
B_DRV
R_CUT
G_CUT
B_CUT
HCLP
BLANK
BOE0
BOE1
BOE2
BOE3
BOE4
BOE5
BOE6 VSAW4
BOE7 VSAW3
BOE8 VSAW2
BOE9 VSAW1
VSAW1
VSAW2
VSAW3
VSAW4
HSOE
VSOE
CLKE
NRST
LCDMODE
HFR
VPD
TEST
FBPIN
TRST
TMS
TCK
TDI
TDO
JTAG_TRST
JTAG_TMS
JTAG_TCK
TDO_FS_I
JTAG_TDO
JTAG_TDI
TP90
TP91
TP92
TP93
TP94
FBP
D4401
D4402
L4411
DF_OUT
FBP_IN
V_DRIVE
AUDIO_OUT_MUTE
AUDIO_IN_MUTE
HSYNC
LOSD_YS
LOSD_YM
LOSD_R
LOSD_G
LOSD_B
VSYNC
AFC1
AFC2
SOS1
SOS2
SDA_3
SCL_3
FA1
SDA_2
SCL_2
VPP
WP
HBLK_CONV
DEG_SW/SOS3
MAIN_RELAY_ON
RM
KEYSCAN
KEYSCAN2
SYSCLK
LED
KEY3
HFP
AK_AV4_R
AK_AV4_L
AK_AV4_C
AK_AV4_S_DET
AK_AV4_Y
AK_AV4_V
ATSC/TV1_L
ATSC/TV1_R
VAO_L
VAO_R
MAIN_R
MAIN_L
ATSC_OSD & Conver_VP
ATSC_V
TV_V
SCL_1
SDA_1
TP27
TP29
TP32
TP36
TP37
TP6
JS4457
JS4458
JS4459
FL4409
FL4410
FL4411
FL4412
FL4413
FL4414
FL4415
FL4416
FL4417
FL4422
FL4423
FL4424
FL4425
FL4427
FL4428
FL4429
FL4434
FL4435
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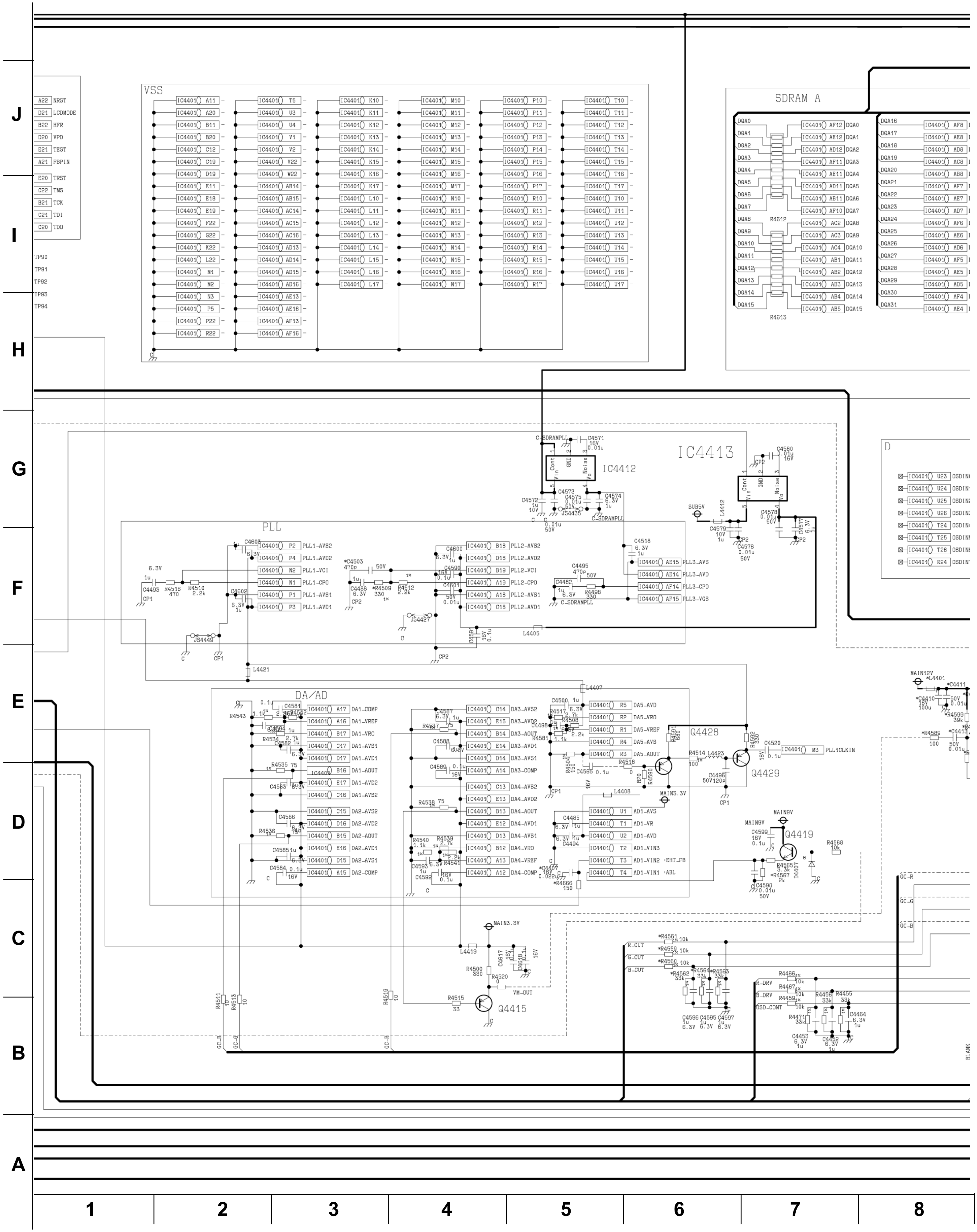
FL4441
FL4443
FL4444
FL4445
FL4446
FL4447
FL4448
FL4449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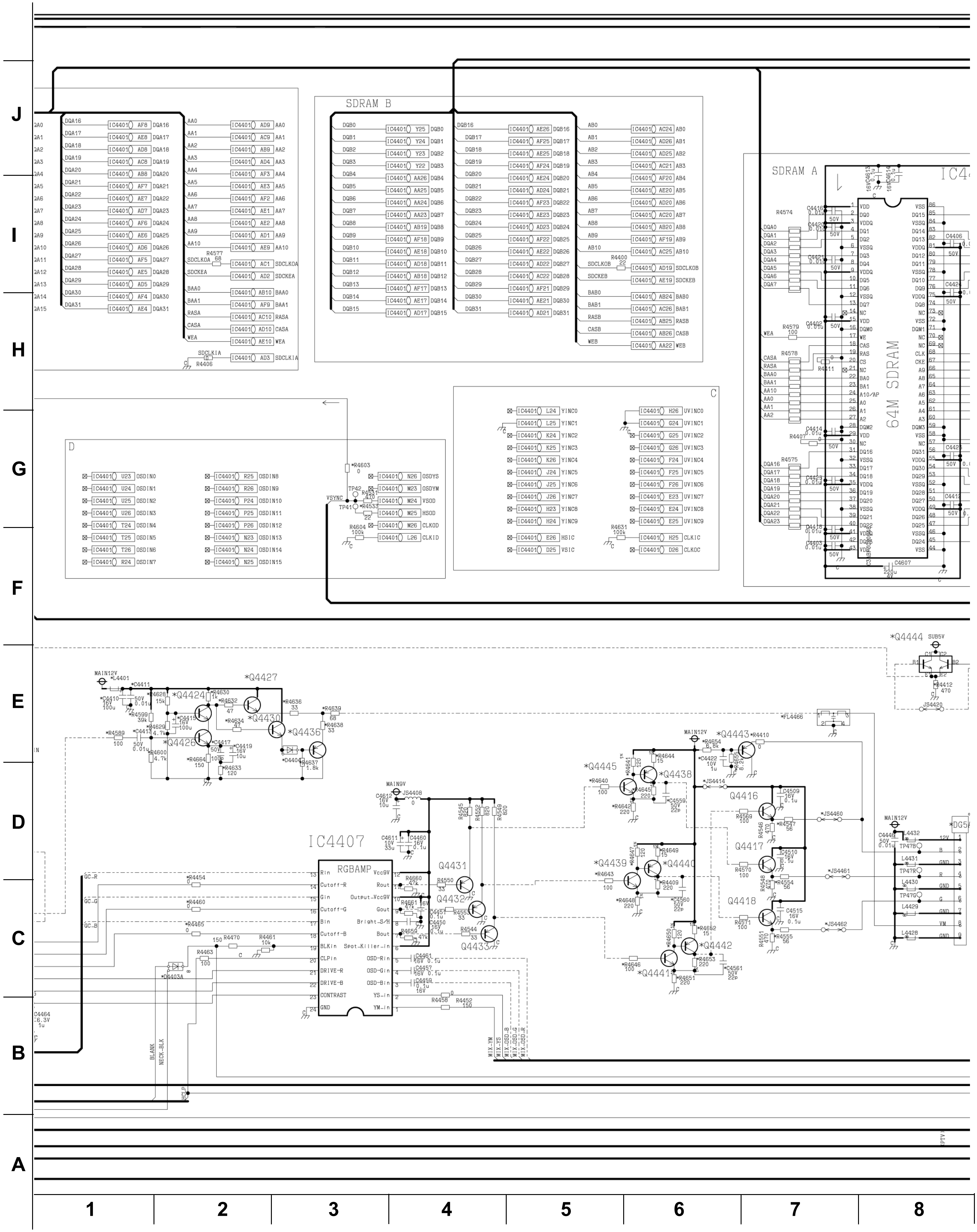
VSS
SDRAM A
R4612
R4613
IC4413
IC4412
C-SDRAMPLL
SUB5V
L4412
PLL
PLL1-AVS2
PLL1-AVD2
PLL1-VCI
PLL1-CPO
PLL1-AVS1
PLL1-AVD1
PLL2-AVS2
PLL2-AVD2
PLL2-VCI
PLL2-CPO
PLL2-AVS1
PLL2-AVD1
PLL3-AVS
PLL3-AVD
PLL3-CPO
PLL3-VGS
L4405
L4421
L4407
DA/AD
DA1-COMP
DA1-VREF
DA1-VRO
DA1-AVS1
DA1-AVD1
DA1-AOUT
DA1-AVD2
DA1-AVS2
DA2-AVS2
DA2-AVD2
DA2-AOUT
DA2-AVD1
DA2-AVS1
DA2-COMP
DA3-AVS2
DA3-AVD2
DA3-AOUT
DA3-AVD1
DA3-AVS1
DA3-COMP
DA4-AVS2
DA4-AVD2
DA4-AOUT
DA4-AVD1
DA4-AVS1
DA4-VRO
DA4-VREF
DA4-COMP
DA5-AVD
DA5-VRO
DA5-VREF
DA5-AVS
DA5-AOUT
AD1-AVS
AD1-VR
AD1-AVD
AD1-VIN3
AD1-VIN2
AD1-VIN1
EHT-FB
ABL
Q4428
Q4429
PLL1CLKIN
L4423
L4408
MAIN3.3V
MAIN9V
Q4419
D4407
MAIN12V
L4401
L4419
Q4415
VM-OUT
R-CUT
G-CUT
B-CUT
R-DRV
B-DRV
OSD-CONT
GC-R
GC-G
GC-B
TP90
TP91
TP92
TP93
TP94
NRST
LCDMODE
HFR
VPD
TEST
FBPIN
TRST
TMS
TCK
TDI
TDO
BLANK

DG-BOARD **8 of 11** **TNP2AA173AE** **PT-53X54J**


SDRAM B
SDRAM A
64M SDRAM
IC4401
IC4407
RGBAMP
D
C
VSYNC
MAIN12V
MAIN9V
SUB5V
*Q4424
*Q4426
*Q4427
*Q4430
*Q4436
Q4431
Q4432
Q4433
*Q4438
*Q4439
*Q4440
*Q4441
*Q4442
*Q4443
*Q4444
*Q4445
Q4416
Q4417
Q4418
GC-R
GC-G
GC-B
BLANK
NECK-BLK
HCLP
MIX-YM
MIX-YS
MIX-OSD-B
MIX-OSD-G
MIX-OSD-R
*DG5
J
I
H
G
F
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C
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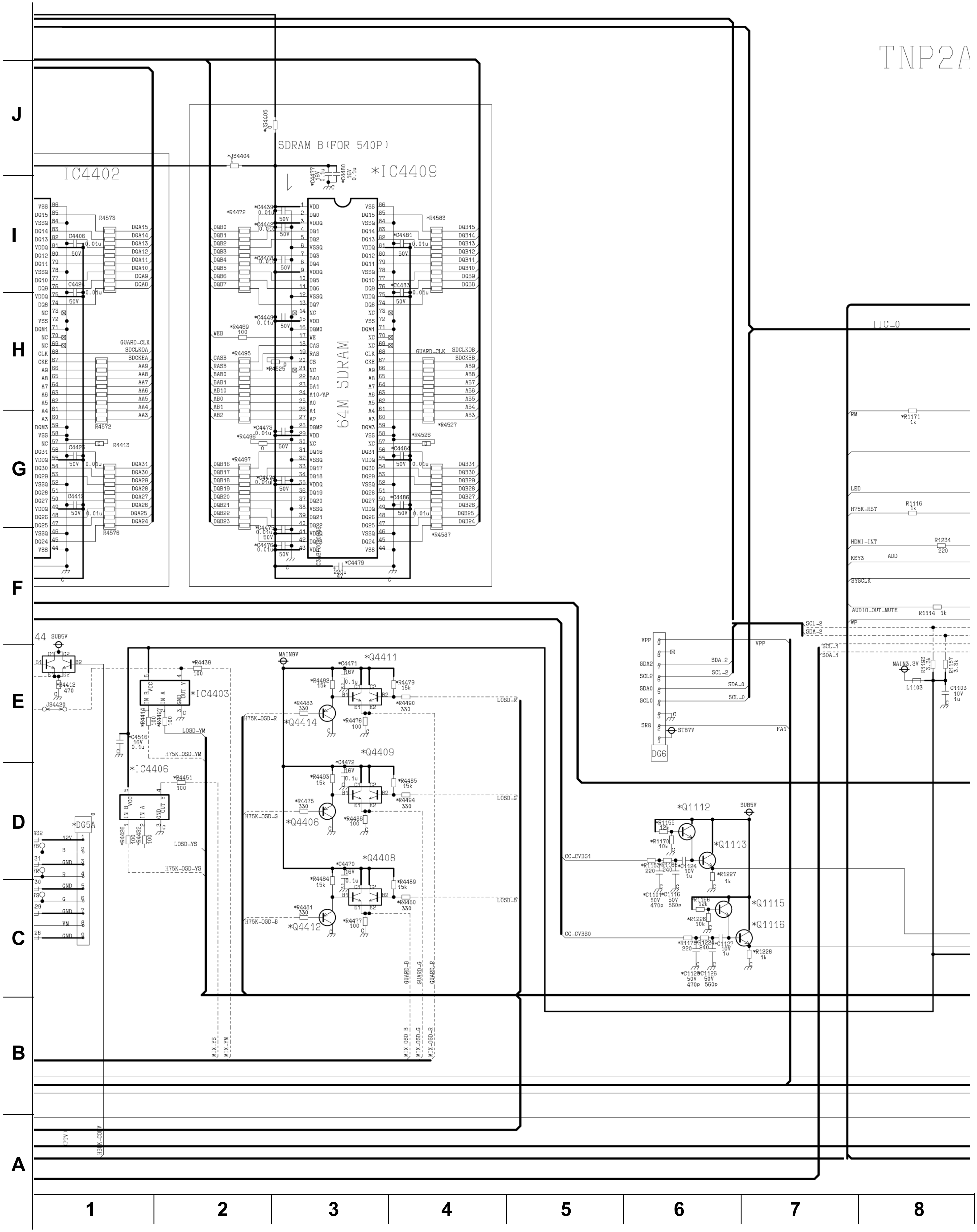
TNP2A
IC4402
SDRAM B(FOR 540P)
*IC4409
64M SDRAM
*JS4405
*JS4404
R4573
R4572
R4576
R4413
*R4583
*R4527
*R4526
*R4587
*R4472
*R4469
*R4495
*R4525
*R4496
*R4497
*C4479
220u
4V
GUARD_CLK
SDCLKOA
SDCKEA
SDCLKOB
SDCKEB
IIC_0
RM
*R1171
LED
H75K_RST
R1116
HDMI_INT
R1234
KEY3
ADD
SYSCLK
AUDIO_OUT_MUTE
R1114
WP
SCL_2
SDA_2
SCL_1
SDA_1
MAIN3.3V
L1103
C1103
R1193
R1157
VPP
SDA2
SCL2
SDA0
SCL0
SRG
STB7V
FA1
DG6
SUB5V
*R4412
JS4420
*IC4403
*IC4406
*C4516
*R4439
*R4451
LOSD_YM
H75K_OSD_YM
LOSD_YS
H75K_OSD_YS
*DG5A
MAIN9V
*Q4411
*Q4414
*Q4409
*Q4406
*Q4408
*Q4412
H75K_OSD_R
H75K_OSD_G
H75K_OSD_B
LOSD_R
LOSD_G
LOSD_B
GUARD_B
GUARD_G
GUARD_R
MIX_YS
MIX_YM
MIX_OSD_B
MIX_OSD_G
MIX_OSD_R
*Q1112
*Q1113
*Q1115
*Q1116
CC_CVBS1
CC_CVBS0
HBLK_CONV
J
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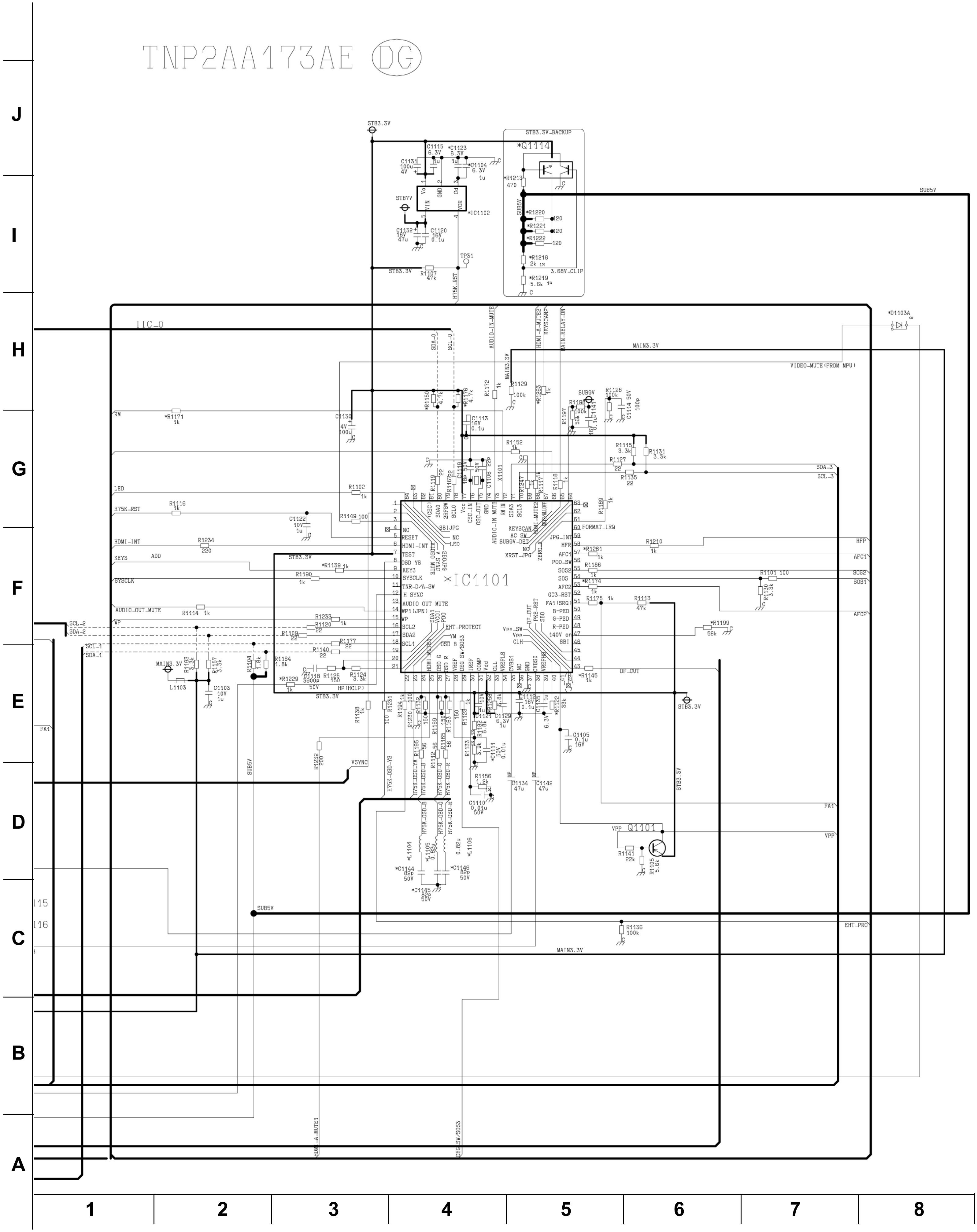
TNP2AA173AE (DG)


J
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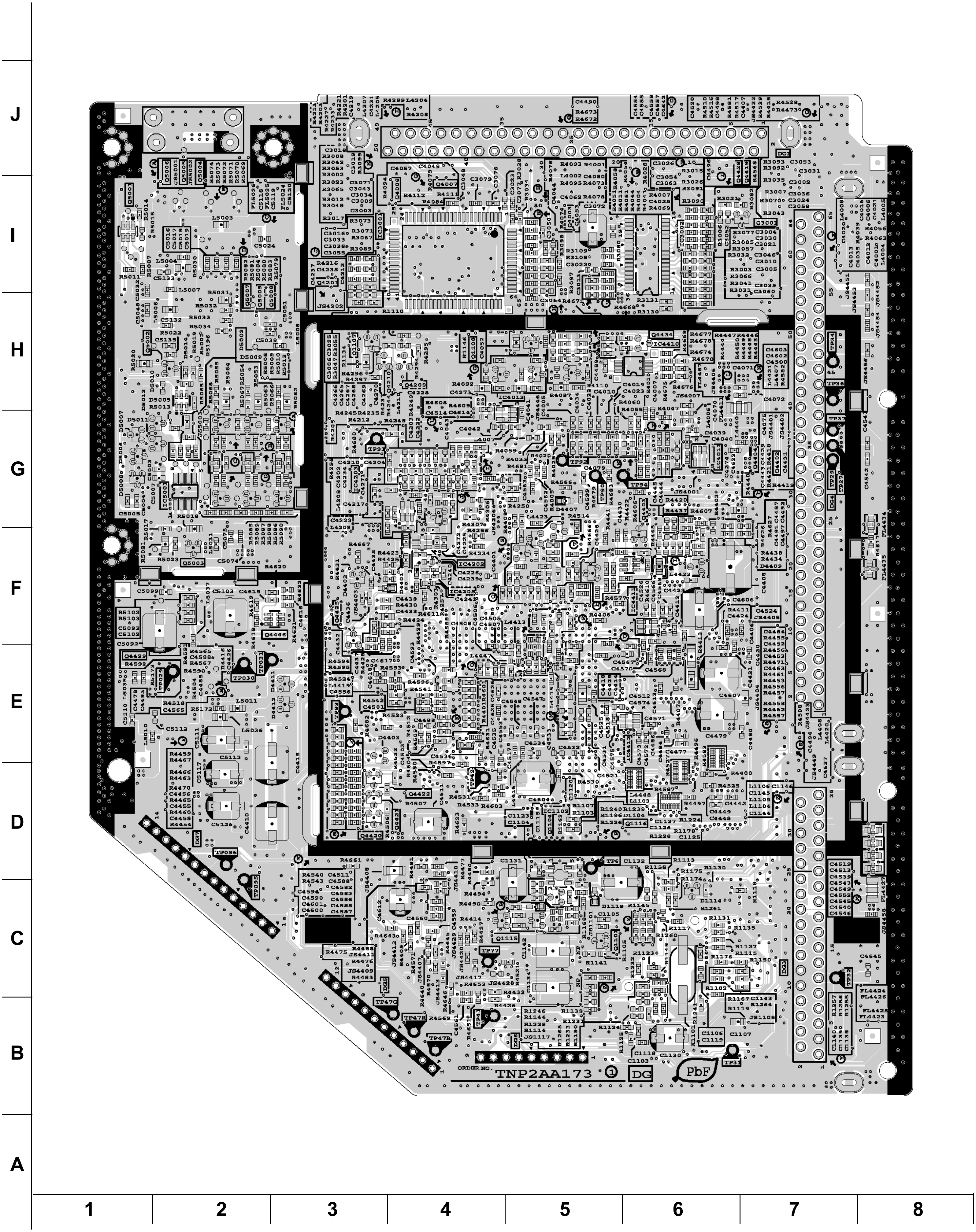
8
STB3.3V
STB3.3V_BACKUP
*Q1114
*R1213 470
SUB5V
*R1220 120
*R1221 120
*R1222 120
*R1218 2k 1%
*R1219 5.6k 1%
3.68V_CLIP
C1115 6.3V 1u
*C1123 6.3V 1u
*C1104 6.3V 1u
C1131 100u 4V
*IC1102
VIN
VDR
Vo
GND
Cd
STB7V
C1132 16V 47u
C1120 16V 0.1u
TP31
R1107 47k
H75K_RST
IIC_0
SDA_0
SCL_0
AUDIO_IN_MUTE
HDMI_A_MUTE2
KEYSCAN2
MAIN_RELAY_ON
MAIN3.3V
*D1103A
VIDEO_MUTE(FROM MPU)
*R1150 4.7k
*R1176 4.7k
C1130 4V 100u
C1113 16V 0.1u
R1172 1k
R1129 100k
*R1263 1k
SUB9V
R1198 100k
C1141 0.1u 16V
R1128 100k
C1114 50V 100p
R1197 56k
RM
*R1171 1k
R1152 1k
R1115 3.3k
R1131 3.3k
R1127 22
R1135 22
SDA_3
SCL_3
LED
R1102 1k
R1119 22
R1116 1k
R1167 22
C1119 18p 50V
C1106 22p 50V
X1101
R1247 1k
R1117 1k
R1118 1k
R1189 1k
H75K_RST
C1122 10V 1u
R1149 100
HDMI_INT
R1234 220
KEY3
ADD
SYSCLK
AUDIO_OUT_MUTE
R1114 1k
R1190 1k
*R1139 1k
*IC1101
NC
RESET
HDMI_INT
TEST
OSD YS
KEY3
SYSCLK
TNR_D/A_SW
H SYNC
AUDIO OUT MUTE
WP1(JPN)
WP
SCL2
SDA2
SCL1
CEC1
SDA0
2RFSW
SCL0
Vcc
OSC_IN
OSC_OUT
GND
RM IN
SDA3
SCL3
HDMI_MUTE2
KEYSCAN
AC SW
SUBGV_DET
XRST_JPG
SBIJPG
LED
NC
ZERO_X
JPG_INT
FORMAT_IRQ
HFR
AFC1
POD_SW
SOS2
SOS
AFC2
GC3_RST
FA1(SRQ)
B_PED
G_PED
R_PED
140V on
SBI
DF_CUT
PKS_RST
SBO
Vpp_SW
Vpp
CLH
SDA1
SCL1
PDO
EHT_PROTECT
YM
OSD B
OSD G
OSD R
VREF
DEG SW/SOS3
IREF
COMP
Vdd
CLL
VREFLS
CVBS1
NC
GND
CVBS0
VREFHS
HFP
AFC1
SOS2
SOS1
AFC2
R1210 1k
*R1261 1k
R1186 1k
*R1174 1k
R1101 100
R1130 3.3k
R1175 1k
R1113 47k
*R1199 56k
*R1145 1k
DF_CUT
SCL_2
SDA_2
SCL_1
SDA_1
WP
R1233 1k
R1120 22
R1109 22
R1177 22
R1140 22
MAIN3.3V
R1193 3.3k
R1157 3.3k
R1104 1.8k
R1164 1.8k
L1103
C1103 10V 1u
*C1118 3900p 50V
R1125 150
R1124 3.3k
*R1229 1k
HP(HCLP)
STB3.3V
R1138 1k
R1231 100
R1194 1k
R1230 100
R1136 150
R1169 150
R1163 150
R1123 1k
R1258 6.8k
C1121 10V 1u
R1182 6.8k
C1129 1u
C1112 16V 0.1u
C1135 6.3V 1u
*R1122 33k
C1105 0.1u 16V
R1195 56
R1112 56
R1165 56
R1133 3.3k
R1132 1k
C1111 50V 0.01u
R1156 1.2k
C1110 0.01u 50V
C1134 47u
C1142 47u
R1232 200
VSYNC
SUB5V
H75K_OSD_YS
H75K_OSD_YM
H75K_OSD_B
H75K_OSD_G
H75K_OSD_R
*L1104
*L1105 0.82u
*L1106 0.82u
*C1144 82p 50V
*C1145 82p 50V
*C1146 82p 50V
FA1
VPP
Q1101
R1141 22k
R1105 5.6k
STB3.3V
SUB5V
R1136 100k
EHT_PRO
MAIN3.3V
I15
I16
HDMI_A_MUTE1
DEG_SW/SOS3



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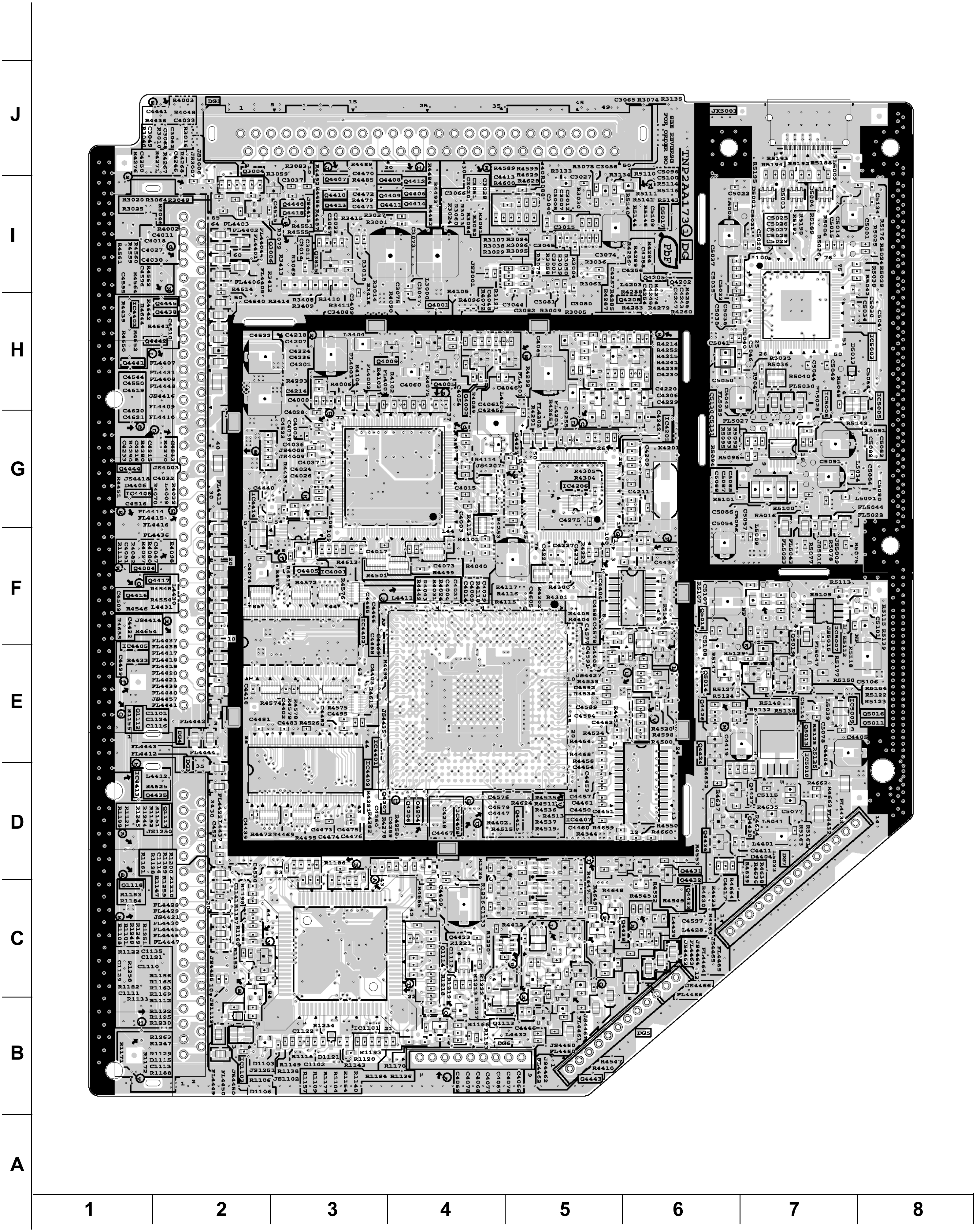
ORDER NO.
TNP2AA173
DG
PbF

DG-PCB BOTTOM VIEW **TNP2AA173** **PT-53X54J**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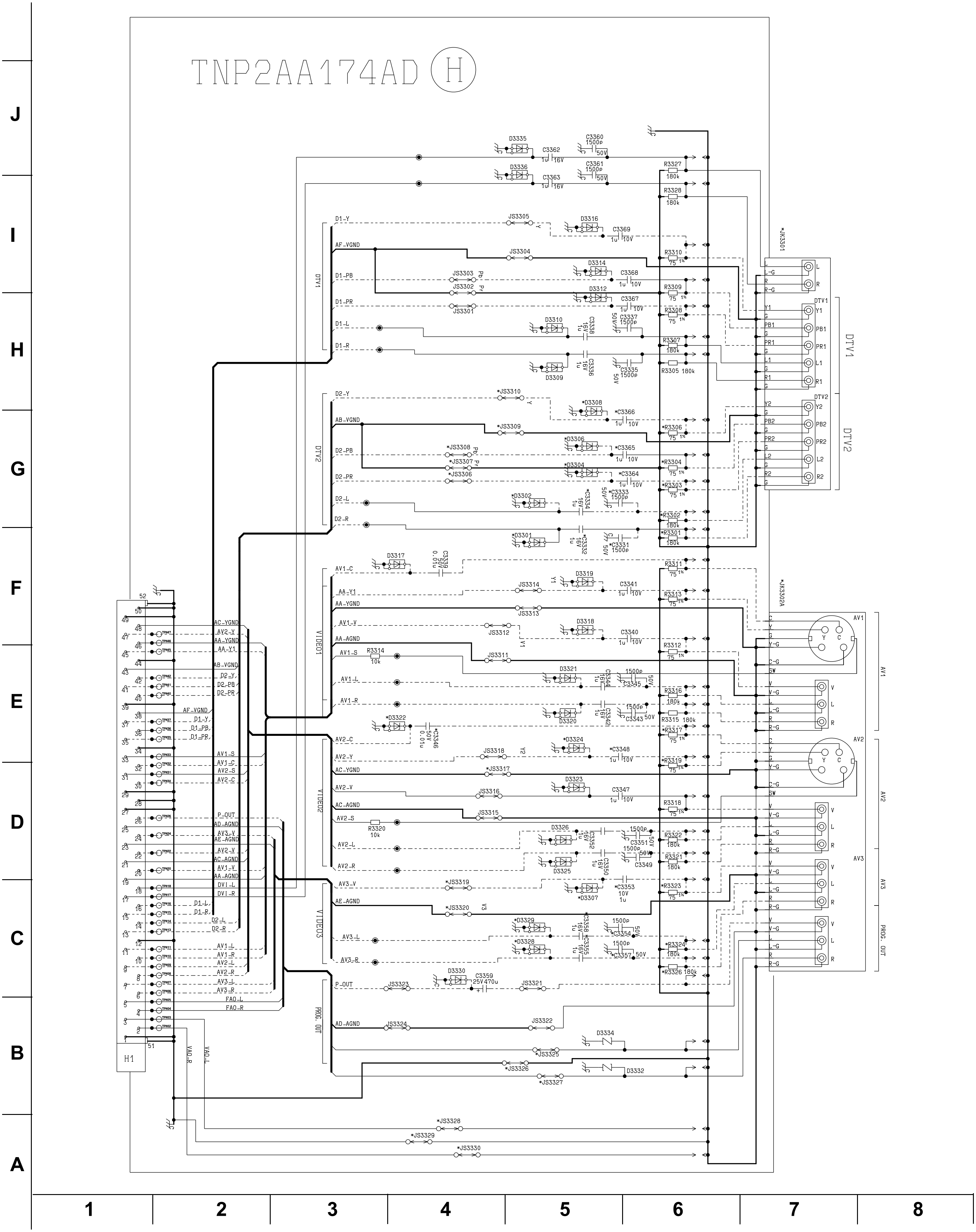
TNP2AA173 DG
JK5001
DG1
DG5
DG6
DG7
SEE REVERSE FOR ORDER NO

DG-PCB TOP VIEW **TNP2AA173** **PT-53X54J**


TNP2AA174AD
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8
D3335
C3362
1u 16V
C3360
1500p
50V
D3336
C3363
1u 16V
C3361
1500p
50V
R3327
180k
R3328
180k
D1-Y
JS3305
D3316
C3369
1u 10V
AF-VGND
JS3304
R3310
75 1%
D1-PB
JS3303
Pb
D3314
C3368
1u 10V
JS3302
Pr
D3312
R3309
75 1%
D1-PR
JS3301
C3367
1u 10V
R3308
75 1%
DTV1
D1-L
D3310
C3338
16V 1u
C3337
50V 1500p
R3307
180k
D1-R
C3336
16V 1u
C3335
50V 1500p
R3305 180k
D3309
*JK3301
L
L-G
R
R-G
Y1
G
PB1
PR1
L1
R1
Y2
PB2
PR2
L2
R2
DTV1
DTV2
D2-Y
*JS3310
*D3308
*C3366
1u 10V
AB-VGND
*JS3309
*R3306
75 1%
D2-PB
*JS3308
*D3306
*C3365
1u 10V
*JS3307
*D3304
*R3304
75 1%
D2-PR
*JS3306
*C3364
1u 10V
*R3303
75 1%
DTV2
D2-L
*D3302
*C3334
16V 1u
*C3333
50V 1500p
D2-R
*R3302
180k
*D3301
*C3332
16V 1u
*C3331
50V 1500p
*R3301
180k
AV1-C
D3317
C3339
50V 0.01u
R3311
75 1%
AA-Y1
JS3314
Y1
D3319
C3341
1u 10V
*JK3302A
AA-YGND
JS3313
R3313
75 1%
AV1-V
JS3312
D3318
C3340
1u 10V
V1
AA-AGND
R3312
75 1%
AV1-S
R3314
10k
JS3311
VIDEO1
AV1-L
D3321
C3344
16V 1u
1500p
C3345
50V
R3316
180k
AV1-R
D3320
C3342
16V 1u
1500p
C3343
50V
R3315 180k
*D3322
*C3346
50V 0.01u
AV2-C
*R3317
75 1%
AV2-Y
JS3318
Y2
*D3324
*C3348
1u 10V
*R3319
75 1%
AC-YGND
*JS3317
AV2-V
JS3316
D3323
C3347
1u 10V
VIDEO2
AC-AGND
JS3315
R3318
75 1%
AV2-S
R3320
10k
D3326
C3352
16V 1u
1500p
C3351
50V
R3322
180k
AV2-L
1500p
50V
C3349
D3325
C3350
16V 1u
R3321
180k
AV2-R
AV3-V
*JS3319
*D3307
*C3353
10V 1u
*R3323
75 1%
AE-AGND
*JS3320
V3
VIDEO3
AV3-L
*D3329
*C3358
16V 1u
1500p
*C3354
50V
AV3-R
*D3328
*C3355
16V 1u
1500p
*C3357
50V
*R3324
180k
*R3326
180k
P-OUT
JS3323
D3330
C3359
25V 470u
JS3321
PROG. OUT
AD-AGND
JS3324
JS3322
D3334
*JS3325
*JS3326
D3332
*JS3327
*JS3328
*JS3329
*JS3330
C
Y
G
Y-G
C-G
SW
V
V-G
L-G
R-G
AV1
AV2
AV3
PROG. OUT
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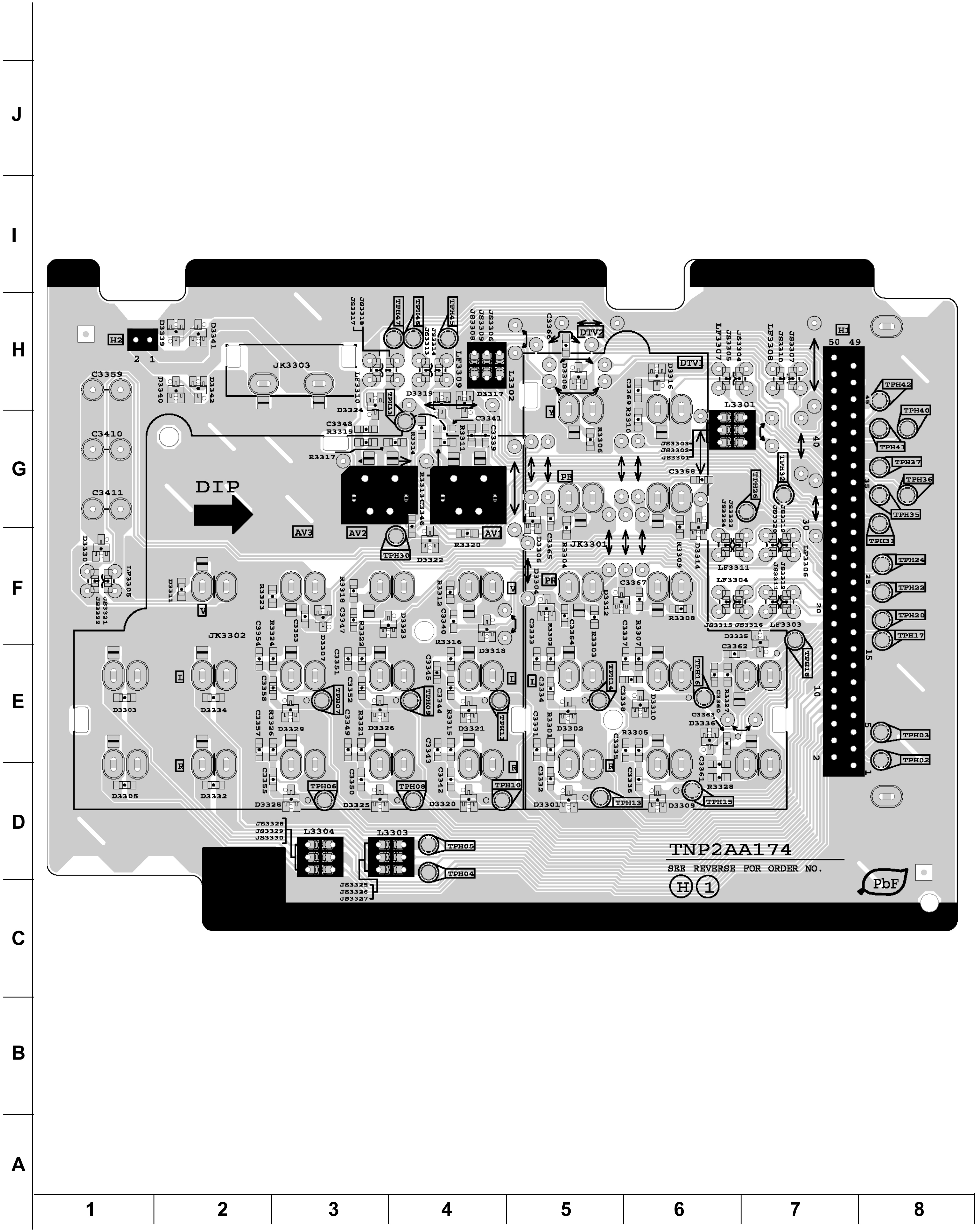
51
H1
AC-YGND
AV2-Y
AA-YGND
AA-Y1
AB-VGND
D2-Y
D2-PB
D2-PR
AF-VGND
D1-Y
D1-PB
D1-PR
AV1-S
AV1-C
AV2-S
AV2-C
P-OUT
AD-AGND
AV3-V
AE-AGND
AV2-V
AC-AGND
AV1-V
AA-AGND
DV1-L
DV1-R
D1-L
D1-R
D2-L
D2-R
AV1-L
AV1-R
AV2-L
AV2-R
AV3-L
AV3-R
FAO-L
FAO-R
VAO-R
VAO-L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TNP2AA174
SEE REVERSE FOR ORDER NO.
H 1
PbF
DIP
AV3
AV2
AV1
DTV1
DTV2
JK3301
JK3302
JK3303
H1
H2
50
49
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L3301
L3302
L3303
L3304
LF3303
LF3304
LF3305
LF3306
LF3307
LF3308
LF3309
LF3310
LF3311
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C3410
C3411
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C3342
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C3369
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C3336
R3317
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R3309
R3310
R3327
R3328
D3339
D3340
D3341
D3342
D3330
D3311
D3303
D3305
D3334
D3332
D3328
D3329
D3307
D3325
D3326
D3323
D3320
D3321
D3318
D3322
D3324
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D3316
D3308
D3306
D3304
D3312
D3314
D3310
D3302
D3301
D3309
D3335
D3336
JS3317
JS3318
JS3313
JS3314
JS3306
JS3309
JS3308
JS3301
JS3302
JS3303
JS3304
JS3305
JS3307
JS3310
JS3311
JS3312
JS3315
JS3316
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JS3320
JS3321
JS3322
JS3323
JS3324
JS3325
JS3326
JS3327
JS3328
JS3329
JS3330
TPH02
TPH03
TPH04
TPH05
TPH06
TPH07
TPH08
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TPH47
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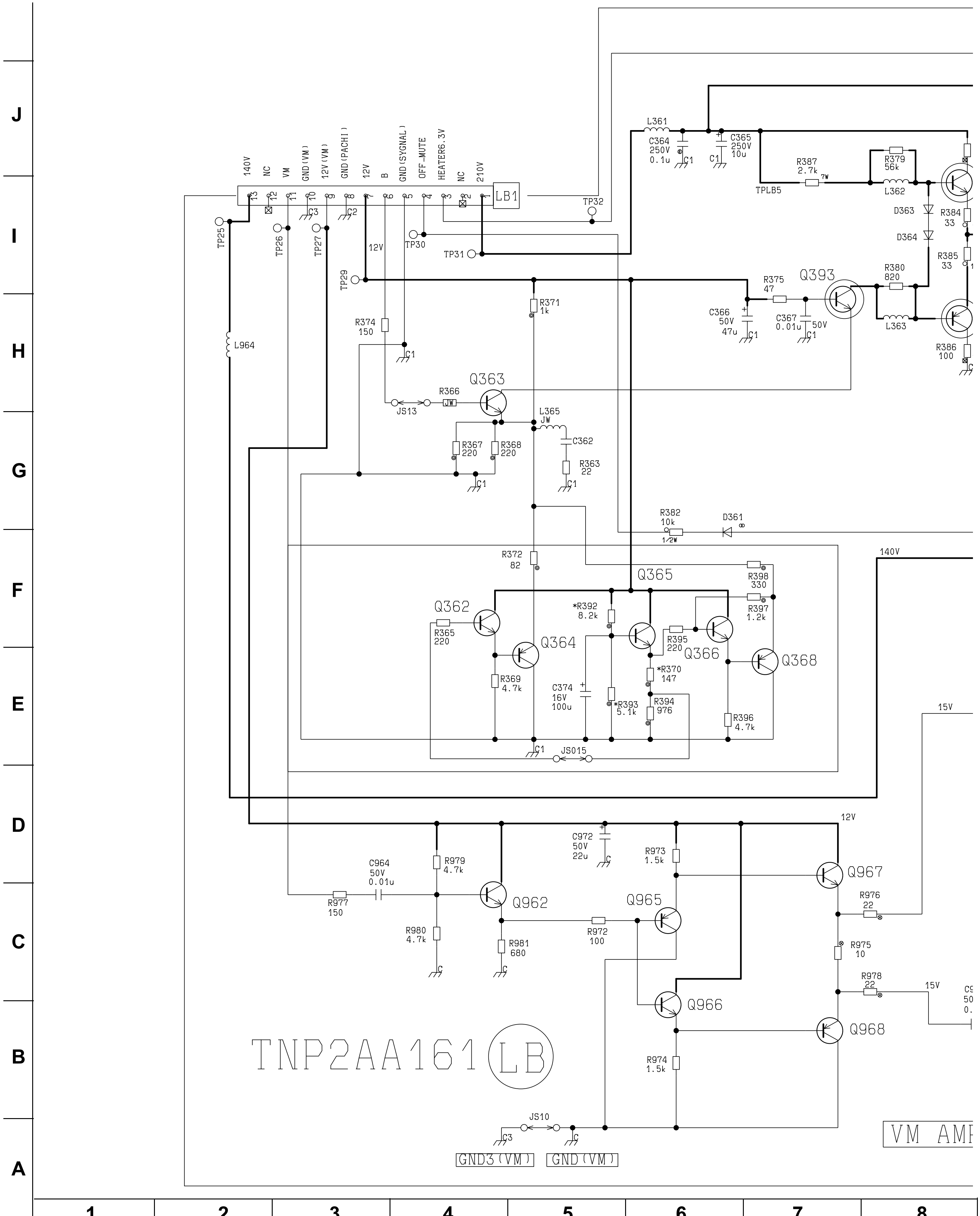
PB
PR
V
L
R


J
I
H
G
F
E
D
C
B
A
1
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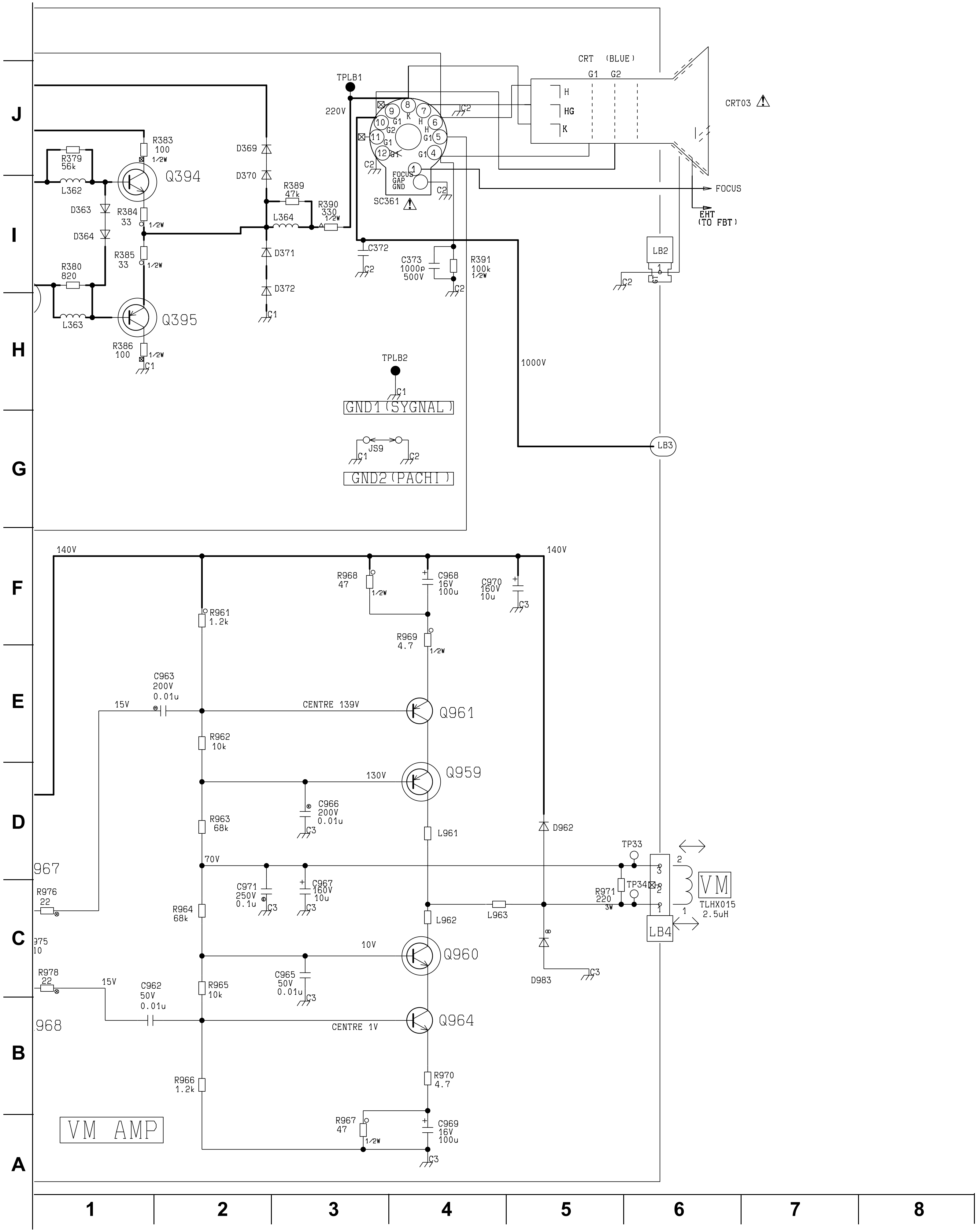
5
6
7
8
140V
NC
VM
GND(VM)
12V(VM)
GND(PACHI)
12V
B
GND(SYGNAL)
OFF-MUTE
HEATER6.3V
NC
210V
13
12
11
10
9
8
7
6
5
4
3
2
1
LB1
C3
C2
TP25
TP26
TP27
TP29
TP30
TP31
TP32
12V
L361
C364
250V
0.1u
C365
250V
10u
C1
R387
2.7k
7W
TPLB5
R379
56k
L362
D363
D364
R384
33
R385
33
R375
47
Q393
R380
820
L363
C366
50V
47u
C367
0.01u
50V
R386
100
R371
1k
R374
150
L964
Q363
R366
JW
JS13
L365
JW
C362
R367
220
R368
220
R363
22
R382
10k
1/2W
D361
R372
82
Q365
R398
330
140V
Q362
R365
220
Q364
*R392
8.2k
R395
220
Q366
R397
1.2k
Q368
*R370
147
C374
16V
100u
*R393
5.1k
R394
976
R369
4.7k
R396
4.7k
JS015
15V
12V
C972
50V
22u
R979
4.7k
C964
50V
0.01u
Q962
R973
1.5k
Q967
R977
150
Q965
R976
22
R980
4.7k
R972
100
R981
680
R975
10
R978
22
15V
C9
50
0.
Q966
Q968
TNP2AA161
LB
R974
1.5k
JS10
C
GND3(VM)
GND(VM)
VM AMP

CRT (BLUE)
G1 G2
H
HG
K
CRT03 ⚠
TPLB1
220V
9
8
7
10
G1
K
H
6
G2
11
G1
G1
5
12
G1
G1
4
1
FOCUS
GAP
GND
C2
SC361 ⚠
FOCUS
EHT
(TO FBT)
R383
100
1/2W
Q394
R379
56k
L362
D369
D370
R389
47k
L364
R390
330
1/2W
D363
R384
33
1/2W
D364
R385
33
1/2W
R380
820
L363
Q395
R386
100
1/2W
C1
D371
D372
C372
C373
1000p
500V
R391
100k
1/2W
LB2
1
5
TPLB2
GND1(SYGNAL)
JS9
GND2(PACHI)
1000V
LB3
140V
140V
R968
47
1/2W
C968
16V
100u
C970
160V
10u
C3
R961
1.2k
R969
4.7
1/2W
C963
200V
0.01u
15V
CENTRE 139V
Q961
R962
10k
130V
Q959
C966
200V
0.01u
R963
68k
L961
D962
TP33
967
70V
C971
250V
0.1u
C967
160V
10u
R971
220
3W
TP34
3
2
1
VM
TLHX015
2.5uH
R976
22
R964
68k
L962
L963
LB4
975
10
10V
Q960
D983
R978
22
15V
C962
50V
0.01u
C965
50V
0.01u
R965
10k
968
CENTRE 1V
Q964
R966
1.2k
R970
4.7
VM AMP
R967
47
1/2W
C969
16V
100u
J
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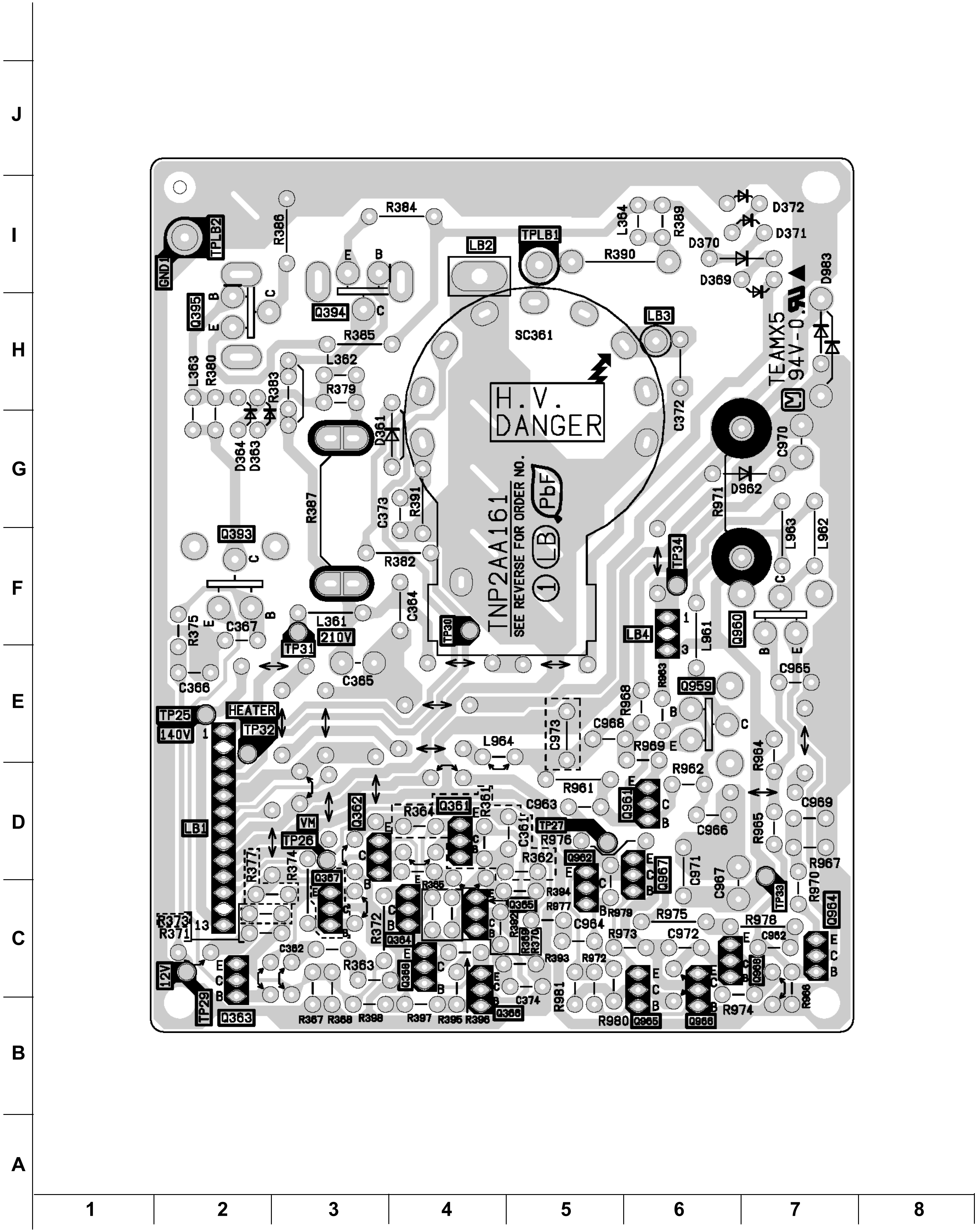
J
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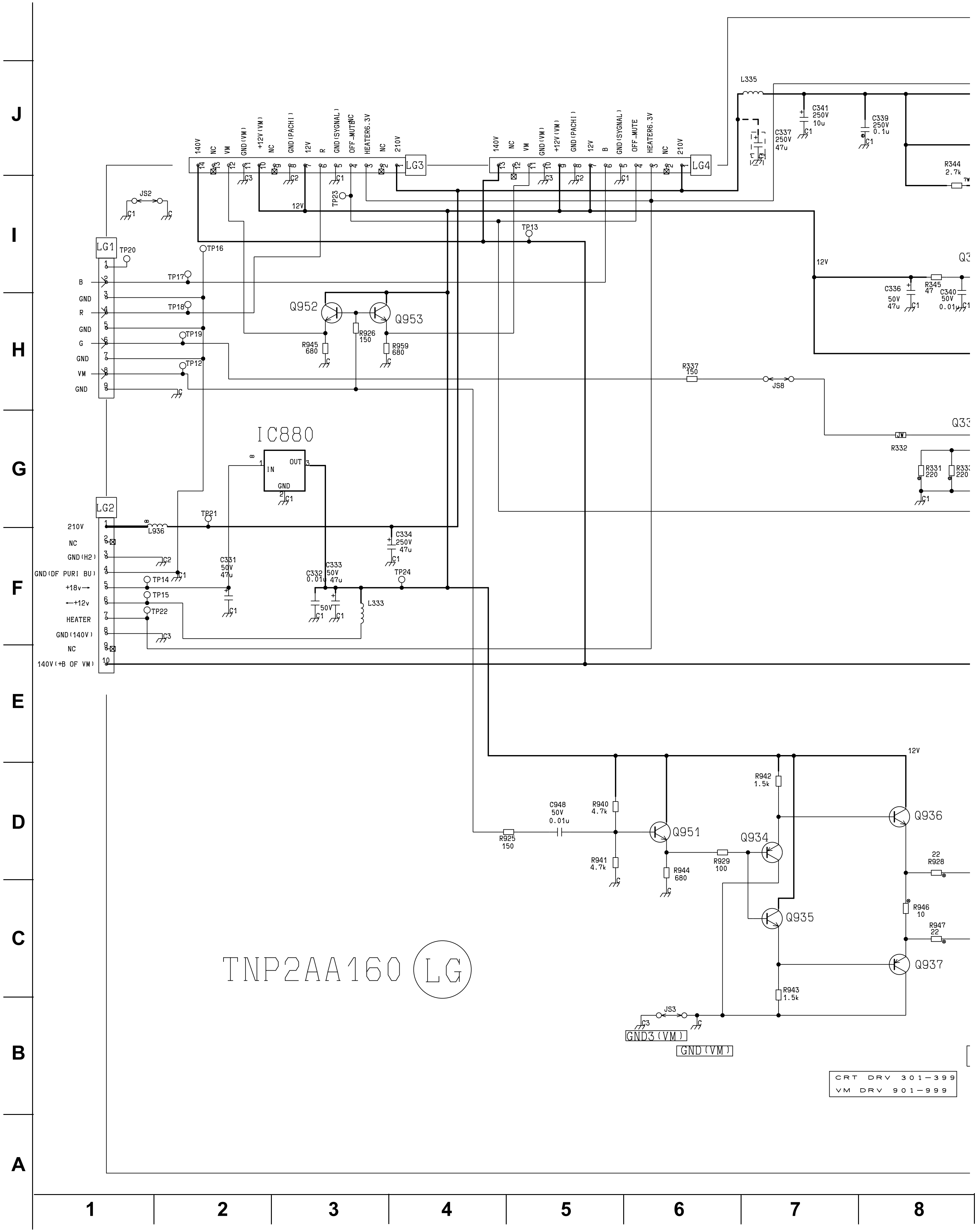
8
H.V.
DANGER
TNP2AA161
SEE REVERSE FOR ORDER NO.
① LB PbF
SC361
TEAMX5
94V-0
GND1
TPLB2
TPLB1
LB2
LB3
LB4
LB1
R384
R386
R390
L364
R389
D372
D371
D370
D369
D983
Q395
Q394
R365
L362
R379
L363
R380
R383
D364
D363
D361
C372
C970
D962
R971
L963
L962
Q393
R387
C373
R391
R382
C364
L361
210V
TP31
TP30
TP34
TP25
140V
HEATER
TP32
R375
C367
C366
C365
Q960
L961
C965
Q959
R963
R968
C973
C968
R969
R962
L964
R961
Q961
C966
R964
C969
R965
R967
R970
TP33
C967
C971
Q967
Q962
TP27
R976
C963
Q361
R361
C361
R364
Q362
VM
TP26
R377
R374
Q367
R362
R394
R977
R979
C964
R975
R978
Q964
R365
Q365
R392
R369
R370
R393
R972
R973
C972
C962
Q968
R966
R974
Q966
Q965
R980
R981
C374
Q366
R396
R395
R397
R398
R368
R367
Q363
TP29
12V
R373
R371
C382
R363
Q368
Q364
R372
13
1
3
E
C
B


J
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D
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A
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2
3
4
5
6
7
8
LG1
LG2
LG3
LG4
140V
NC
VM
GND(VM)
+12V(VM)
GND(PACHI)
12V
R
B
GND(SYGNAL)
OFF_MUTE
HEATER6.3V
210V
JS2
TP20
TP16
TP17
TP18
TP19
TP12
TP13
TP23
TP21
TP24
TP14
TP15
TP22
GND
G
Q952
Q953
R945 680
R926 150
R959 680
IC880
IN
OUT
GND
L936
C334 250V 47u
C331 50V 47u
C332 0.01u
C333 50V 47u
L333
GND(H2)
GND(DF PURI BU)
+18v
+12v
HEATER
GND(140V)
140V(+B OF VM)
L335
C341 250V 10u
C339 250V 0.1u
C337 250V 47u
R344 2.7k
Q3
C336 50V 47u
R345 47
C340 50V 0.01u
R337 150
JS8
Q33
R332
R331 220
R333 220
12V
R942 1.5k
Q936
R940 4.7k
C948 50V 0.01u
Q951
Q934
R925 150
R941 4.7k
R944 680
R929 100
R928 22
R946 10
R947 22
Q935
Q937
R943 1.5k
JS3
GND3(VM)
GND(VM)
TNP2AA160 (LG)
CRT DRV 301-399
VM DRV 901-999